DVP-CX850D
RMT-D113A

SERVICE MANUAL

US Model
Canadian Model

Self Diagnosis
Supported model

SPECIFICATIONS

CD/DVD player

Laser Semiconductor laser
Signal format system
NTSC

Audio characteristics

Frequency response
DVD (PCM 96 kHz): 2 Hz to 44 kHz (±1 dB)*
DVD (PCM 48 kHz): 2 Hz to 22 kHz (±0.5 dB)
CD: 2 Hz to 20 kHz (±0.5 dB)
Signal-to-noise ratio
More than 115 dB (LINE OUT (AUDIO 1, 2) connectors only)
Harmonic distortion
Less than 0.0025%
Dynamic range
More than 100 dB (DVD)
More than 97 dB (CD)
Wow and flutter
Less than detected value (±0.001% W PEAK)

Outputs and inputs

	Jack type	Output/Input level	Load impedance
LINE OUTPUT (AUDIO 1, 2)	Phono jacks	2 Vrms (at 50 kilohms)	Over 10 kilohms
DIGITAL OUTPUT (OPTICAL)	Optical output connector	–18 dBm	Wave length: 660 nm
DIGITAL OUTPUT (COAXIAL)	Phono jack	0.5 Vp-p	75 ohms terminated

	Jack type	Output/Input level	Load impedance
LINE OUTPUT (VIDEO 1, 2)	Phono jacks	1.0 Vp-p	75 ohms, sync negative
S VIDEO OUTPUT (1, 2)	4-pin mini DIN	Y: 1.0 Vp-p C: 0.286 Vp-p	75 ohms, sync negative 75 ohms terminated
COMPONENT VIDEO OUTPUT (Y, PB/B-Y, PR/R-Y)	Phono jacks	Y: 1.0 Vp-p PB/B-Y, PR/R-Y: 0.7 Vp-p	75 ohms, sync negative 75 ohms
5.1CH OUTPUT	Phono jacks	2 Vrms (at 50 kilohms)	Over 10 kilohms
S-LINK	Mini jack	–	–
MEGA CONTROL	Mini jack	–	–
AUDIO INPUT	Phono jack	2 Vrms	47 kilohms

General

Power requirements (indicated on the rear panel)
120 V AC, 60 Hz
Power consumption
18 W
Dimensions (approx.)
430 × 198 × 503 mm
(17 × 7 7/8 × 19 7/8 in.) (w/h/d)
incl. projecting parts
Mass (approx.)
10 kg (22 lb 1 oz)
Operating temperature
41 ˚F to 95 ˚F
(5 ˚C to 35 ˚C)
Operating humidity
5% to 90%

Supplied accessories

- Audio/video/S-link connecting cord (1)
- S video cord (1)
- Remote commander (remote) RMT-D113A (1)
- Size AA (R6) batteries (2)

* *The signals from LINE OUTPUT (AUDIO 1, 2) connectors and 5.1 ch L, R connectors are measured. When you play the PCM sound tracks with 96 kHz sampling frequency, the output signals from the DIGITAL OUTPUT (OPTICAL, COAXIAL) are converted to 48 kHz (sampling frequency).*

Design and specifications are subject to change without notice.

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As an ENERGY STAR® Partner, Sony Corporation has determined that this product meets the ENERGY STAR® guidelines for energy efficiency.

DVD VIDEO
COMPACT disc DIGITAL VIDEO

CD/DVD PLAYER

MICROFILM

SONY®

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer.

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the line cord for cracks and abrasion.
   Recommend the replacement of any such line cord to the customer.
6. Check the B+ voltage to see it is at the values specified.
7. Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

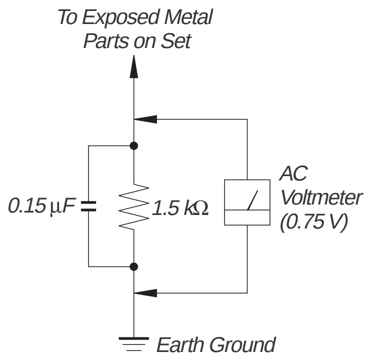

Fig. A. Using an AC voltmeter to check AC leakage.

WARNING!!

WHEN SERVICING, DO NOT APPROACH THE LASER EXIT WITH THE EYE TOO CLOSELY. IN CASE IT IS NECESSARY TO CONFIRM LASER BEAM EMISSION, BE SURE TO OBSERVE FROM A DISTANCE OF MORE THAN 25 cm FROM THE SURFACE OF THE OBJECTIVE LENS ON THE OPTICAL PICK-UP BLOCK.

CAUTION:

The use of optical instrument with this product will increase eye hazard.

CAUTION
Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5mA (500 microampers). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA TW-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75V, so analog meters must have an accurate low voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable. (See Fig. A)

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈSES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPÉMENTS PUBLIÉS PAR SONY.

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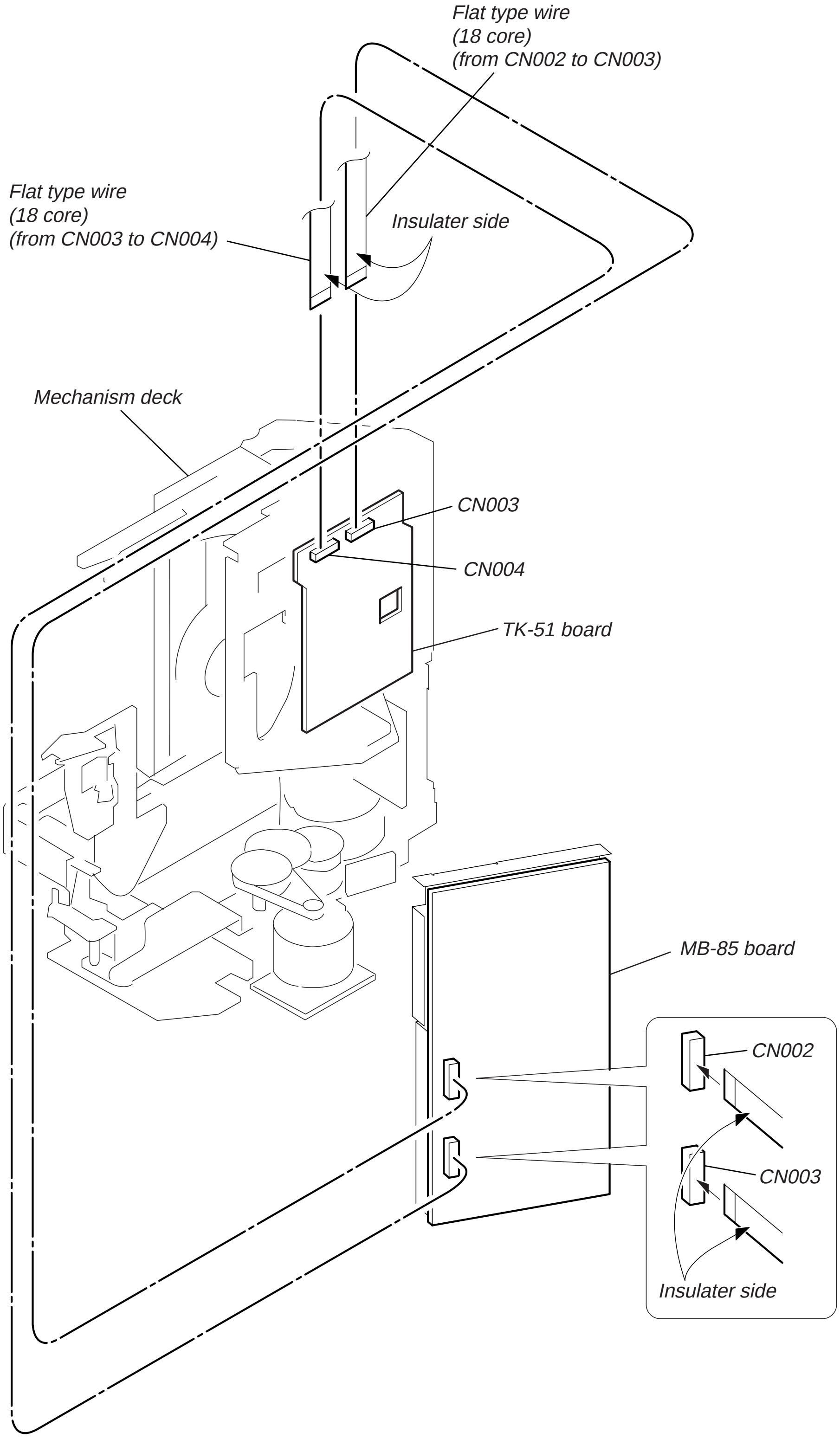
SERVICE NOTE

- The two flat type wires that connect the TK-51 board with the MB-85 board are not equipped with the mis-insertion preventive measures. If the two wires are incorrectly inserted each other by mistake, it can damage the MB-85 board as the secondary failure.



SELF-DIAGNOSIS FUNCTION

1. FRONT BOARD TEST MODE

The test mode can check the following functions.

1. Button function
2. Remote commander signal reception function
3. System controller ´ IF controller serial communication function
4. Direct search dial function
5. Click shuttle function
6. FL display tube illumination check
   Grid check
   Anode check
7. LED control function
8. Key board control function

2. HOW TO ENTER THE TEST MODE

While pressing the [RETURN] and [STOP] or the [TIME/TEXT] and [EDIT] buttons of the DVP-CX850D at the same time in the standby mode, press the [SET UP] button of the remote commander to enter the test mode.

When the DVP-CX850D enters the test mode, the automatic display sequence of the FL display tubes starts as follows.

1. All segments of the LED and the FL display tube turn on for about five seconds.
   Note: The [DIRECT SEARCH] LED and the [DISC CHANGE] LED turn on alternatingly while all FL display tubes turn on.
2. Prototype model name is displayed.

Type	Name on display	Mass production model name
200 DISK-DD	DPX-1180	DVP-CX850D

   As to the display indication of the FL display tubes, refer to “9. FLD AUTO TEST OPERATION”.
3. Date of the last update of the program is displayed.
   Example: 990604
4. The message [GRID TEST] appears. Then the odd number grids and the even number grids flash alternately. (Three times)
5. The message [ANODE TEST] appears. Then the odd number anodes and the even number anodes flash alternately. (Three times)
6. Returns to step 1 “All segments of the LED and the FL display tube turn on for about five seconds.”

Steps 1 through 6 are repeated.

3. HOW TO EXIT THE TEST MODE

Press the [POWER] button of the DVP-CX850D and the remote commander. The FL display tube turns off and the red POWER-LED only turns on to return to the standby mode as long the serial communication between the system controller and the IF controller works correctly.
While pressing the [STOP] button, press the [POWER] button to return forcibly to the standby mode.

DETAILED DESCRIPTION OF THE FRONT BOARD TEST

1. TESTING THE BUTTON FUNCTION

Press any function button (except [POWER] of the DVP-CX850D in the test mode. Then the machine exits the FL display tube automatic display test mode. As long the button is kept pressed, the FL display tube shows the function name of the pressed button. When hand is removed from the button, the message [NOTHING] appears. For the function name of the buttons on the FL display tube, refer to the following table.

When any of the self-illuminating buttons (the buttons equipped with LED), every pressing of the button toggles between turning on and off. To test the MULTI CHANNEL LED (blue LED), press the [RETURN] button because the LED does not have its corresponding button.

	Input Voltage [V]	IC201 IF CON				
		Pin 6 ANO	Pin 5 AN1	Pin 4 AN2	Pin 3 AN3	Pin 2 AN4
1	0	STOP	POWER	TITLE	REPEAT	FOLDER A
2	0.65	PAUSE	PLAY	DVD MENU	PROGRAM	FOLDER B
3	1.24	←	MEGA-CTRL	RETURN	SHUFFLE	FOLDER C
4	1.88	↓	DISC/ACS	DISPLAY	SORT	FOLDER D
5	2.41	ENTER	ACS ENTER	CLEAR	FILE	FOLDER ALL
6	2.92	↑	EASY PLAY	1/ALL DISCS	EDIT	FOLDER DVD
7	3.45	→		TIME/TEXT		FOLDER CD
8	3.94	JOG		LOAD		

The direction pointing buttons function to enter the special modes as shown below.

↑: FL display tube grid check
↓: LED check
←: Direct search dial check
→: FL display tube anode check

All buttons are judged by the input voltage value to the A/D port. The reference voltage of the A/D port is EVER 5V. The input voltage value is calculated with 10-bit accuracy. Only when the input voltage value agrees twice, the value is input to the A/D port in order to remove chattering of buttons.
When the buttons of the IF controller are judged, the A/D port had a dead zone so that the message [IGNORE] appears when an input voltage in the range of the dead zone is input.

2. TESTING THE REMOTE COMMANDER SIGNAL RECEPTION FUNCTION

When the machine receives the remote commander signal while [NOTHING] is displayed, the function name of the remote commander code is displayed on the FL display tube. The machine receives the DVD category code only.
The [DISPLAY] button of the remote commander functions to switch the display between the function name display and the code display.
When the code is displayed, the message [REM NO xx] appears. The characters xx indicates the received code in the hexadecimal number.
When the remote commander signal is not received, the message [FF] appears.

3. TESTING THE SYSTEM CONTROLLER ↔ IF CONTROLLER SERIAL COMMUNICATION FUNCTION

The bi-directional serial communication between the system controller and the IF controller is performed normally at the rate of 24 ms. This mode can easily check if the communication is correctly performed or not.
When the non-relief type characters such as [VIDEO CD], [DVD] and [CD] in the left of the FL display tube turn off while [NOTHING] is displayed, it indicates that the serial communication with the system controller is correctly performed.
When these non-relief type characters turn on, it indicates that the serial communication with the system controller is not performed.
However, during the period of several seconds (until initialization of the MB board is complete) after the test mode is activated, the non-relief type characters can turn on. This is normal.

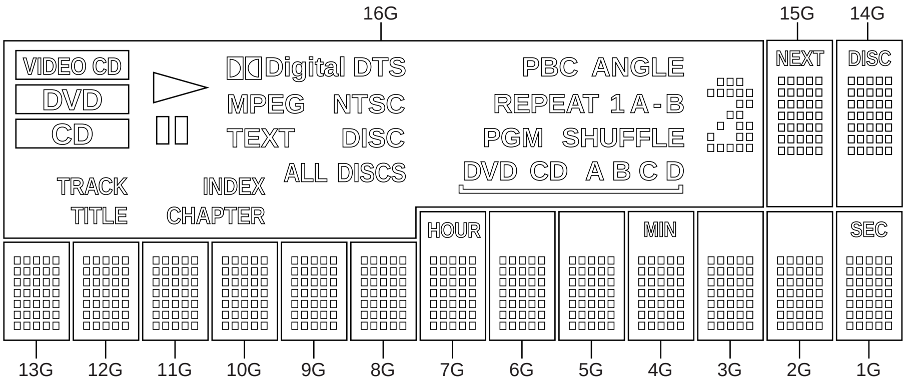
4. TESTING THE CLICK SHUTTLE FUNCTION

This test checks that the IF controller can recognize the rotation of the click shuttle control. When the illuminating segment moves as the click shuttle is rotated during the subsequent grid check and the anode check, the click shuttle is normal.

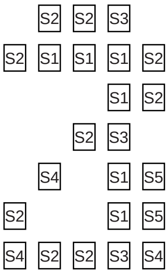
5. TESTING THE FL DISPLAY TUBE ILLUMINATION CHECK

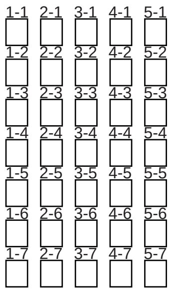
The FL display tube can be simply checked by the automatic display mode, but can be checked more precisely by this mode.
All segments of the FL display tube are turned on when the [STOP] and [PLAY] buttons of the DVP-CX850D are pressed at the same time.

5-1. FL Display Tube for DVP-CX850D



(16G)





(15G~1G)

ANODE CONNECTION

Anode	Grid: 16G	15G	14G	13G~8G	7G	6G~5G	4G	3G~2G	1G
P1	VIDEO CD	1-1	1-1	1-1	1-1	1-1	1-1	1-1	1-1
P2	DVD	2-1	2-1	2-1	2-1	2-1	2-1	2-1	2-1
P3	CD	3-1	3-1	3-1	3-1	3-1	3-1	3-1	3-1
P4	TRACK	4-1	4-1	4-1	4-1	4-1	4-1	4-1	4-1
P5	TITLE	5-1	5-1	5-1	5-1	5-1	5-1	5-1	5-1
P6	▷	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2
P7	▯▯	2-2	2-2	2-2	2-2	2-2	2-2	2-2	2-2
P8	CHAPTER	3-2	3-2	3-2	3-2	3-2	3-2	3-2	3-2
P9	INDEX	4-2	4-2	4-2	4-2	4-2	4-2	4-2	4-2
P10	Digital	5-2	5-2	5-2	5-2	5-2	5-2	5-2	5-2
P11	DTS	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3
P12	PBC	2-3	2-3	2-3	2-3	2-3	2-3	2-3	2-3
P13	ANGLE	3-3	3-3	3-3	3-3	3-3	3-3	3-3	3-3
P14	S1	4-3	4-3	4-3	4-3	4-3	4-3	4-3	4-3
P15	S2	5-3	5-3	5-3	5-3	5-3	5-3	5-3	5-3
P16	S3	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4
P17	S4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4
P18	S5	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4
P19	MPEG	4-4	4-4	4-4	4-4	4-4	4-4	4-4	4-4
P20	TEXT	5-4	5-4	5-4	5-4	5-4	5-4	5-4	5-4
P21	NTSC	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5
P22	REPEAT	2-5	2-5	2-5	2-5	2-5	2-5	2-5	2-5
P23	(REPEAT)1	3-5	3-5	3-5	3-5	3-5	3-5	3-5	3-5
P24	A-	4-5	4-5	4-5	4-5	4-5	4-5	4-5	4-5
P25	B	5-5	5-5	5-5	5-5	5-5	5-5	5-5	5-5
P26	⎣___⎦	1-6	1-6	1-6	1-6	1-6	1-6	1-6	1-6
P27	DVD	2-6	2-6	2-6	2-6	2-6	2-6	2-6	2-6
P28	CD	3-6	3-6	3-6	3-6	3-6	3-6	3-6	3-6
P29	A	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6
P30	B	5-6	5-6	5-6	5-6	5-6	5-6	5-6	5-6
P31	C	1-7	1-7	1-7	1-7	1-7	1-7	1-7	1-7
P32	D	2-7	2-7	2-7	2-7	2-7	2-7	2-7	2-7
P33	ALL DISCS	3-7	3-7	3-7	3-7	3-7	3-7	3-7	3-7
P34	DISC	4-7	4-7	4-7	4-7	4-7	4-7	4-7	4-7
P35	PGM	5-7	5-7	5-7	5-7	5-7	5-7	5-7	5-7
P36	SHUFFLE	NEXT	DISC	-	HOUR	-	MIN	-	SEC

5-2. Grid Check (Pressing the ↑ button enters the grid check mode)

Any desired grid of the FL display tube can be turned on one after another by this mode. (All anodes of the corresponding grid are turned on.)
Move the click shuttle control of the DVP-CX850D to select the desired grid to test.
When the click shuttle is rotated in the clockwise direction starting from G16, the grid G15, G14, —— G1 are turned on. After G1, the grid G16 turns on. Any one of the grids turns on during this test.

5-3. Anode Check (Pressing the → button enters the anode check mode)

Any desired anode of the FL display tube can be turned on one after another by this mode. (All grids of the corresponding anode are turned on.)
When the click shuttle is rotated in the clockwise direction starting from P1, the anode moves to P2, P3, —— and returns to P1 after the last anode. Any one of the anodes turns on during this test.

6. TESTING THE LED CONTROL FUNCTION

The LEDs can be turned on one after another when the button ↓ is pressed.
When the click shuttle is rotated, the LED to turn on moves.
The self-illuminating buttons can be turned on and off, not using this mode, but by operating the buttons.

7. TESTING THE KEY BOARD CONTROL FUNCTION

When [ENTER] of the direction pointing button inside the click shuttle is pressed, the message [Key Board TST] appears in the state waiting for keyboard input.
The numerical and alphabetical character inputs are accepted. The typed characters appear on the display.
When pressing the [Caps Lock] button or [Num Lock] button turns on the LED, the keyboard circuit is judged to be functioning correctly.
The keyboard of the IBM compatible PC of the USA model can be connected.

8. TROUBLESHOOTING

8-1. Cannot Enter the Test Mode

When any button is pressed by some reason after the front panel is already attached, the machine cannot enter the test mode.
The main power cannot also be turned in this state. (The machine stays in the standby state. = The red LED is kept turned on.)
The remote commander cannot also control the machine, not only the button operation is invalid.
To diagnose this state, turn on the main AC power while the self-check port (pin-69 of the IF commander) is kept "Low". The machine enters forcibly the test mode. Alternately, short the soldering lands that have the indication SELF on the printed board. The IF controller checks the self-check port only after the power-on reset. (It does not check the port in the standby mode.)
Pressing any button displays the button name on the FL display tube.
If any display other than NOTHING appears even though any button is not pressed, the machine mis-operates as if any button is pressed. In this state, be sure to remove the FFC from pin-15 that is connected to the MB board, otherwise the machine enters the standby state immediately.

8-2. The Main Power Cannot Be Turned On

1. The red (STANDBY) LED does not turn on even though the main AC power is turned on.

The power (EVER 5V) is not supplied.
X201 does not oscillate.
Connectors connecting the FL board with the FR board have the defective connection.

2. The red (STANDBY) LED remains ON even though the POWER button is pressed.

Any button is in the state of being kept pressed.
PCHECK (pin-77 of the IF controller) is 0.1 V or more.

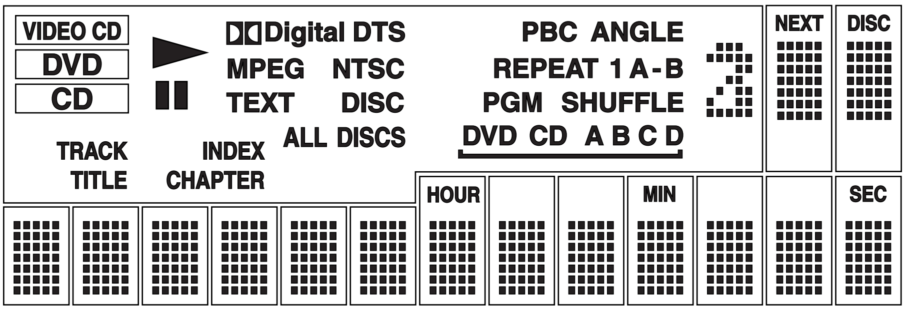
3. The LED turn on in green when the POWER button is pressed, but returns to red several seconds later.

PCHECK (pin-77 of the IF controller) voltage is not normal.
(Rising up from 0. 1 V to 1.5 V or higher is slow. Or the voltage does not go higher than 1.5 V.)
The system controller does not operate correctly.

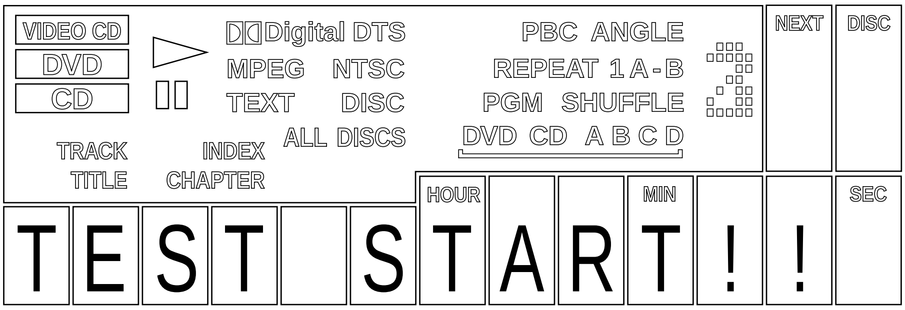
9. FLD AUTO TEST OPERATION

The AUTO TEST operation starts by STOP + RETURN of the machine while power-off or SET UP key of remote commander.
* The segments of the FL display tubes shown in half-tone in the illustration, turn on.

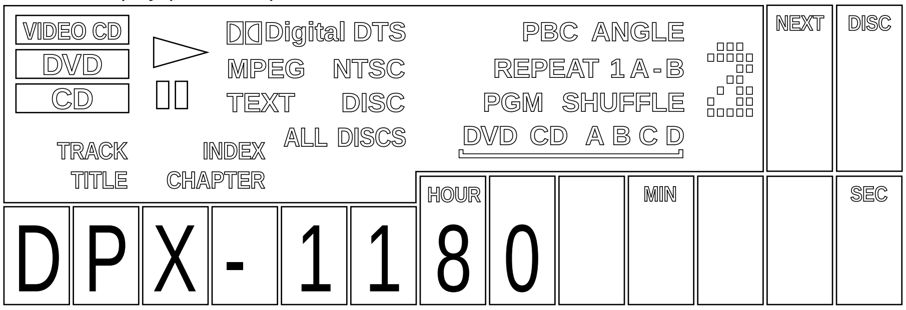
① *FLD All segments turn on display (5 seconds).*



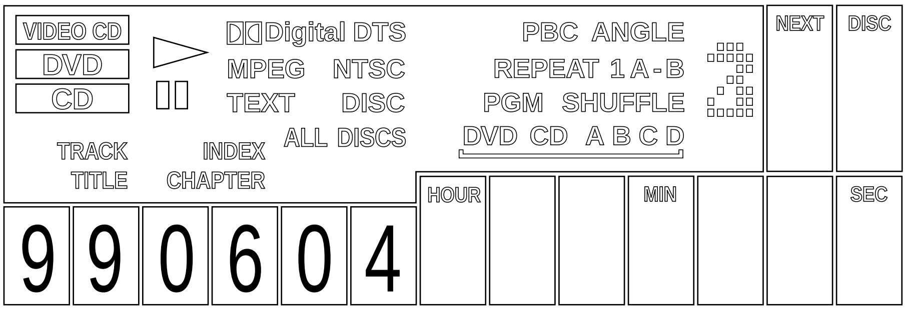
② *Start display (2 seconds). Does not appear for the second time and later.*



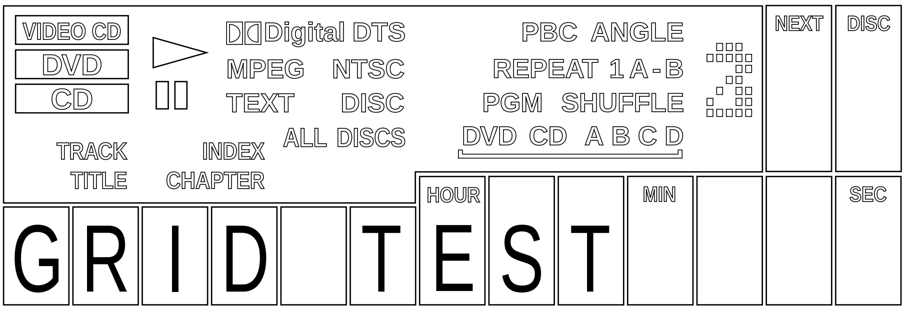
③ *Model display (2 seconds).*



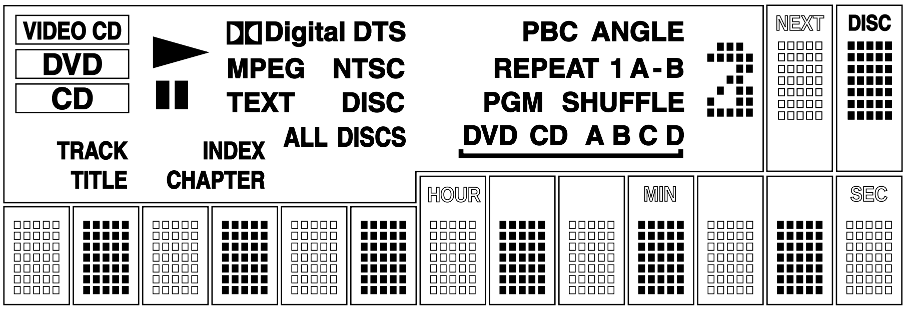
④ *Date display (2 seconds). Program update date appears.*



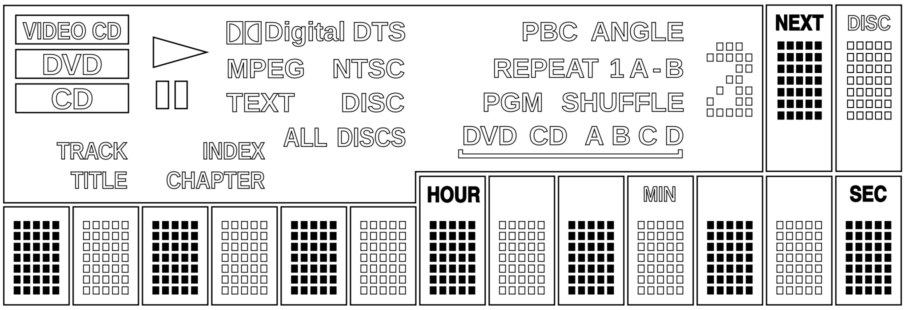
⑤ *Grid TEST Start display (1 second).*



⑥ *FLD odd number Grid turn on (0.7 second).*

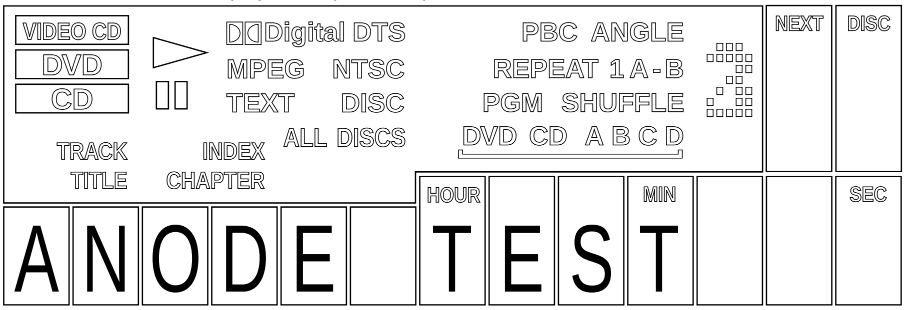


⑦ *FLD even number Grid turn on (0.7 second).*

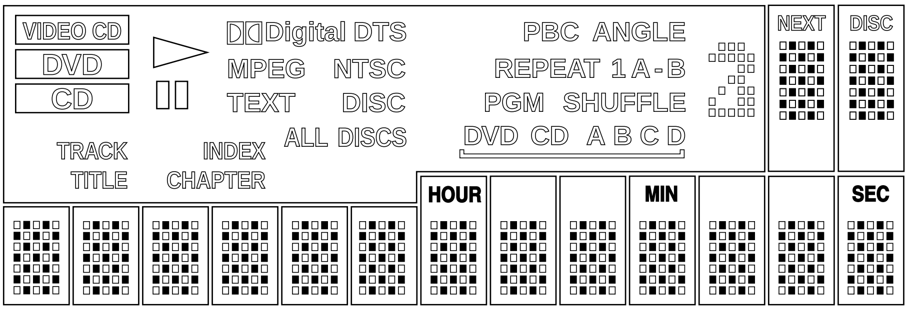


Note: ⑥ and ⑦ displays appear three times repeatly.

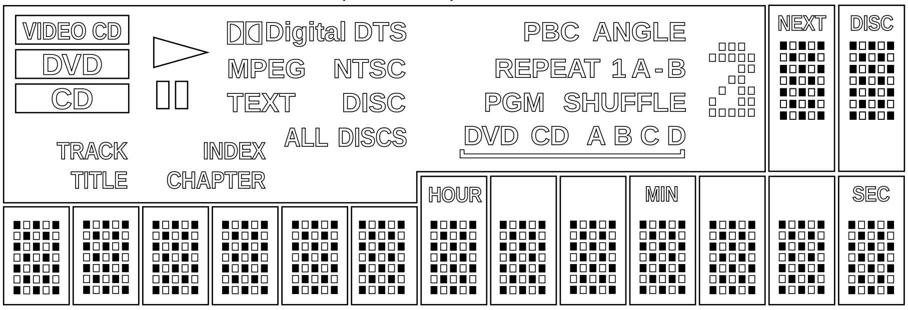
⑧ *FLD Anode TEST display No. 1 (1 second).*



⑨ *FLD even number Anode turn on (0.7 second).*



⑩ *FLD odd number Anode turn on (0.7 second).*



Note: ⑨ and ⑩ displays appear three times repeatly.

Operations from ① through ⑩ are repeated then.
But ② display does not appear for the second time and later.

SECTION 1
GENERAL

This section is extracted from instruction manual.

About This Manual

Conventions
- Instructions in this manual describe the controls on the player You can also use the controls on the remote if they have the same or similar names as those on the player
- The icons on the right are used in this manual:

Icon	Meaning
(remote)	Indicates that you can use only the remote to do the task
(tip)	Indicates tips and hints for making the task easier
DVD	Indicates the functions for DVD VIDEOs
VIDEO CD	Indicates the functions for VIDEO CDs
CD	Indicates the functions for Audio CDs

This Player Can Play the Following Discs

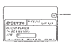
	DVD VIDEOs		VIDEO CDs		Audio CDs	
Disc logo	DVD VIDEO		COMPACT disc DIGITAL VIDEO		COMPACT disc DIGITAL AUDIO TEXT	
Contents	Audio + Video		Audio + Video		Audio	
Disc size	12 cm	8 cm	12 cm	8 cm	12 cm	8 cm (CD single)
Play time	About 4 h (for single-sided DVD)/ about 8 h (for double-sided DVD)	About 80 min (for single-sided DVD)/ about 160 min (for double-sided DVD)	74 min	20 min	74 min	20 min

"DVD VIDEO" logo is a trademark

This player conforms to the NTSC color system You cannot play discs recorded in other color systems such as PAL or SECAM

Region code of DVDs you can play on this unit

Your DVD player has a region code printed on the back of the unit and will only play DVDs that are labeled with identical region codes



Region code

DVDs labeled (ALL) will be also played on this unit

If you try to play any other DVD, the message "Playing this disc prohibited by area limits " will appear on the TV screen

Depending on the DVD, no region code indication may be labeled even though playing the DVD is prohibited by the area limits

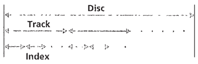
Note on playback operations of DVDs and VIDEO CDs
Some playback operations of DVDs and VIDEO CDs may be intentionally fixed by software producers Since this player plays DVDs and VIDEO CDs according to the disc contents the software producers designed, some playback features may not be available Also refer to the instructions supplied with the DVDs or VIDEO CDs.

Terms for discs

- **Title**
  The longest sections of a picture or a music piece on a DVD; a movie, etc , for a picture piece on a video software; or an album, etc , for a music piece on an audio software Each title is assigned a title number enabling you to locate the title you want
- **Chapter**
  Sections of a picture or a music piece that are smaller than titles A title is composed of several chapters Each chapter is assigned a chapter number enabling you to locate the chapter you want Depending on the disc, no chapters may be recorded
- **Track**
  Sections of a picture or a music piece on a VIDEO CD or a CD Each track is assigned a track number enabling you to locate the track you want

DVD structure

VIDEO CD or CD structure



- **Index (CD) / Video Index (VIDEO CD)**
  A number that divides a track into sections to easily locate the point you want on a VIDEO CD or a CD Depending on the disc, no indexes may be recorded
- **Scene**
  On a VIDEO CD with PBC functions, the menu screens, moving pictures and still pictures are divided into sections called "scenes " Each scene is assigned a scene number enabling you to locate the scene you want

Note on PBC (Playback Control) (VIDEO CDs)
This player conforms to Ver 1.1 and Ver 2 0 of VIDEO CD standards. You can enjoy two kinds of playback according to the disc type

Disc type	You can
VIDEO CDs without PBC functions (Ver. 1.1 discs)	Enjoy video playback (moving pictures) as well as music
VIDEO CDs with PBC functions (Ver 2 0 discs)	Play interactive software using menu screens displayed on the TV screen (PBC Playback), in addition to the video playback functions of Ver 1.1 discs Moreover, you can play high-resolution still pictures, if they are included on the disc.

Discs that the player cannot play
The player cannot play discs other than the ones listed in the table on page 4. CD-R, CD-ROMs including PHOTO CDs, data sections in CD-EXTRAs, DVD-ROMs etc , cannot be played

When playing DTS*-encoded CDs, excessive noise will be heard from the analog stereo outputs To avoid possible damage to the audio system, the consumer should take proper precautions when the analog stereo outputs of the DVD player are connected to an amplification system. To enjoy DTS Digital Surround™ playback, an external 5 1-channel DTS Digital Surround™ decoder system must be connected to the digital output of the DVD player

This product incorporates copyright protection technology that is protected by method claims of certain U S patents and other intellectual property rights owned by Macrovision Corporation and other rights owners Use of this copyright protection technology must be authorized by Macrovision Corporation, and is intended for home and other limited viewing uses only unless otherwise authorized by Macrovision Corporation Reverse engineering or disassembly is prohibited

* "DTS" is a trademark of Digital Theater Systems, Inc

Precautions

On safety
- Caution – The use of optical instruments with this product will increase eye hazard
- Should any solid object or liquid fall into the cabinet, unplug the player and have it checked by qualified personnel before operating it any further

On power sources
- The player is not disconnected from the AC power source (mains) as long as it is connected to the wall outlet, even if the player itself has been turned off
- If you are not going to use the player for a long time, be sure to disconnect the player from the wall outlet To disconnect the AC power cord (mains lead), grasp the plug itself; never pull the cord
- Should the AC power cord (mains lead) need to be changed, have it done at a qualified service shop only.

On placement
- Place the player in a location with adequate ventilation to prevent heat build-up in the player
- Do not place the player on a soft surface such as a rug that might block the ventilation holes on the bottom
- Do not place the player in a location near heat sources, or in a place subject to direct sunlight, excessive dust or mechanical shock

On operation
- If the player is brought directly from a cold to a warm location, or is placed in a very damp room, moisture may condense on the lenses inside the player Should this occur, the player may not operate properly In this case, remove the disc and leave the player turned on for about half an hour until the moisture evaporates

On adjusting volume
- Do not turn up the volume while listening to a portion with very low level inputs or no audio signals. If you do, the speakers may be damaged when a peak level portion is played

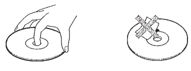
On cleaning
- Clean the cabinet, panel and controls with a soft cloth slightly moistened with a mild detergent solution Do not use any type of abrasive pad, scouring powder or solvent such as alcohol or benzine

If you have any questions or problems concerning your player, please consult your nearest Sony dealer

IMPORTANT NOTICE
Caution: The enclosed DVD player is capable of holding a still video image or On screen display image on your television screen indefinitely. If you leave the still video image or On screen display image displayed on your TV for an extended period of time you risk permanent damage to your television screen Projection televisions are very susceptible

Notes on Discs

On handling discs
- To keep the disc clean, handle the disc by its edge Do not touch the surface
- Do not stick paper or tape on the disc
  If there is glue (or a similar substance) on the disc, remove the glue completely before using the disc



- Do not expose the disc to direct sunlight or heat sources such as hot air ducts, or leave it in a car parked in direct sunlight as there can be considerable rise in temperature inside the car
- After playing, store the disc in its case

On cleaning
- Before playing, clean the disc with a cleaning cloth Wipe the disc from the center out

- Do not use solvents such as benzine, thinner, commercially available cleaners or anti-static spray intended for vinyl LPs

Getting Started

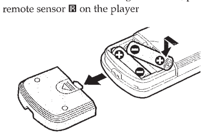
This section describes how to hook up the CD/DVD player to a TV (with audio/video input jacks) and/or an AV receiver (amplifier). You cannot connect this player to a TV which does not have a video input connector. Be sure to turn off the power of each component before making the connections.

Unpacking

Check that you have the following items:
- Audio/video/S-link connecting cord (1)
- S video cord (1)
- Remote commander (remote) RMT-D113A (1)
- Size AA (R6) batteries (2)

Inserting batteries into the remote

You can control the player using the supplied remote Insert two Size AA (R6) batteries by matching the + and – on the batteries. When using the remote, point it at the remote sensor ⊡ on the player



You can control TVs and AV receivers using the supplied remote
See page 67

Notes
- Do not leave the remote in an extremely hot or humid place
- Do not drop any foreign object into the remote casing, particularly when replacing the batteries
- Do not expose the remote sensor to direct sunlight or lighting apparatuses Doing so may cause a malfunction
- If you will not use the remote for an extended period of time, remove the batteries to avoid possible damage from battery leakage and corrosion

Transporting the player

Before transporting the player, follow the procedure below to return the internal mechanisms to their original positions

1. **Remove all the discs from the disc slots.**
2. **Close the front panel.**
   Make sure that "NO DISC" appears in the front panel display.
3. **Wait for 10 seconds, then press I/⏻ to turn off the player.**

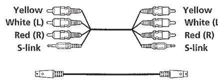
TV Hookups

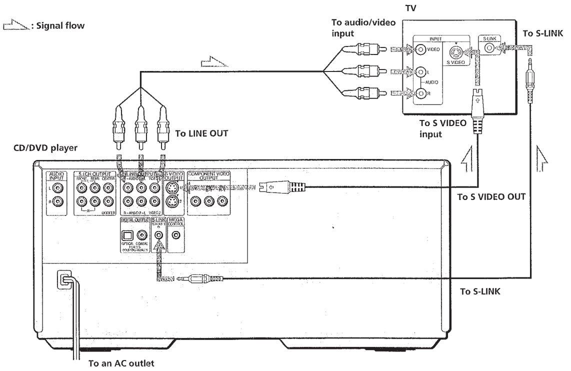
Getting Started

This connection is for listening to the sound through TV speakers (2ch – L, R) Refer to the instructions supplied with the component to be connected

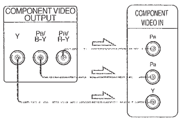
Required cords

Audio/video/S-link connecting cord (supplied) (1)
S video cord (supplied) (1)
When connecting the cords, be sure to match the color-coded cord to the appropriate jacks on the components: Yellow (video) to Yellow, Red (right) to Red and White (left) to White Be sure to make connections firmly to avoid hum and noise
If your TV has an S-link connector, you can control the CD/DVD player from the TV. Connect the TV via the S-LINK connector
If your TV has an S video input connector, connect the component via the S VIDEO OUT connector using the S video cord You will get a better picture
Refer to the instructions supplied with the TV to be connected

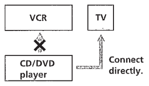




If you connect the player to a monitor or projector having component video input connectors that conform to output signals from the COMPONENT VIDEO OUTPUT (Y, PB/B-Y, PR/R-Y) connectors on the player
Connect the component via the COMPONENT VIDEO OUTPUT connectors using three video connecting cords (not supplied) of the same kind You will get a better picture



Notes
- Refer to the instructions supplied with the component to be connected
- Do not connect this player to a video deck If you view the pictures on your TV after making the connections shown below, a picture noise may appear



- Depending on the TV or receiver (amplifier), sound distortion may occur because the audio output level is high In this case, set "AUDIO ATT" in "AUDIO SETUP" to "ON" in the setup display For details, see page 63

Setups for the player

Some setups are necessary for the player depending on the TV or other components to be connected
Use the setup display to change the various settings
For details on using the setup display, see page 55

- **To connect the player to a normal TV**
  In the setup display, set "TV TYPE" in "SCREEN SETUP" to "4:3 LETTER BOX" (default setting) or "4:3 PAN SCAN " For details, see page 59
- **To connect the player to a TV having the WIDE MODE function**
  In the setup display, set "TV TYPE" in "SCREEN SETUP" to "16:9/4:3 WIDE MODE " For details, see page 59
- **To connect the player to a wide-screen TV**
  In the setup display, set "TV TYPE" in "SCREEN SETUP" to "16:9/4:3 WIDE MODE " For details, see page 59

Getting Started

Receiver (Amplifier) Hookups

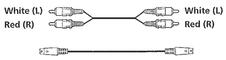
Getting Started

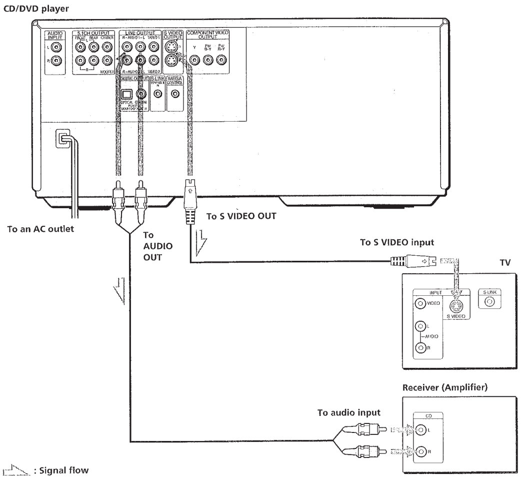
This connection is for listening to the sound through speakers connected to a receiver (amplifier such as an integrated stereo amplifier, a receiver having a built-in Dolby Pro Logic decoder, etc) Refer to the instructions supplied with the component to be connected
You can enjoy 5 1 channel surround sound by connecting a receiver (amplifier) with 5 1 channel inputs See page 48

You can enjoy surround when connecting front speakers only
You can use 3D sound imaging to create virtual rear speakers from the sound of the front speakers (L, R) without using actual rear speakers (VES: Virtual Enhanced Surround) For details, see page 48

Required cords

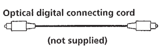
Audio connecting cord (not supplied) (1)
S video cord (supplied) (1)
When connecting the cords, be sure to match the color-coded cord to the appropriate jacks on the components: Red (right) to Red and White (left) to White Be sure to make connections firmly to avoid hum and noise



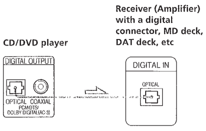


If you have a digital component such as a receiver (amplifier) with a digital connector, DAT or MD
Connect the component via the DIGITAL OUT OPTICAL or COAXIAL connector using an optical or coaxial digital connecting cord (not supplied)
When you play a DVD, set "DIGITAL OUT" in "AUDIO SETUP" to "ON" and then set "DOLBY DIGITAL" to "D-PCM" and "DTS" to "OFF" in the setup display (page 64)

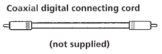
■ When using an optical digital connecting cord

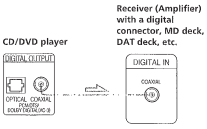


Take off the cap and plug in the optical digital connecting cord



■ When using a coaxial digital connecting cord



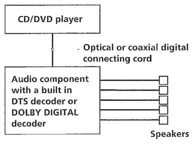


Notes
- Refer to the instructions supplied with the component to be connected
- You cannot make digital audio recordings of discs recorded in multi-channel surround format directly using an MD deck or DAT deck

When you make the connections above, do not set "DOLBY DIGITAL" to "DOLBY DIGITAL" and "DTS" to "ON " If you do, a loud noise will suddenly come out from the speakers, affecting your ears or causing the speakers to be damaged.

If you have an audio component with a built-in DTS decoder or Dolby Digital decoder
Connect the component via the DIGITAL OUT OPTICAL or COAXIAL connector using an optical or coaxial digital connecting cord (not supplied)

- ■ **When you play a DVD that is recorded in DTS format**
  Set "DIGITAL OUT" in "AUDIO SETUP" to "ON" and then set "DTS" to "ON" in the setup display (page 64).
- ■ **When you play a DVD that is recorded in Dolby Digital format**
  Set "DIGITAL OUT" in "AUDIO SETUP" to "ON" and then set "DOLBY DIGITAL" to "DOLBY DIGITAL" in the setup display (page 64).



Notes
- Refer to the instructions supplied with the component to be connected
- **When you do not connect an audio component with a built in DTS decoder, do not set "DTS" to "ON."**
- **When you do not connect an audio component with a built in DOLBY DIGITAL decoder, do not set "DOLBY DIGITAL" to "DOLBY DIGITAL."**

Setups for the player

Some setups are necessary for the player depending on the components to be connected
Use the setup display to change the various settings
For details on using the setup display, see page 55

- **To listen to the sound through speakers connected to a receiver (amplifier) having a digital connector or to output the sound to a digital component such as a DAT or MD deck**
  When you play a DVD, set "DIGITAL OUT" in "AUDIO SETUP" to "ON" and then set "DOLBY DIGITAL" to "D-PCM" and "DTS" to "OFF" in the setup display (page 64) These are the default settings

Getting Started

5.1 Channel Surround Hookups

Some DVDs have a sound track with up to 5 1 channels recorded in Dolby* Digital format Using a receiver (amplifier) having 5 1 channel inputs and the 5 (+1) speakers, you can enjoy more real audio presence in the comfort of your own home

"5 channel" stands for the 2 front speakers (Left and Right), 2 rear speakers (Left and Right) and 1 center speaker The "0.1 channel" (+1) stands for the subwoofer which outputs the bass

Even if you have fewer than 5 (+1) speakers, the player distributes the output signal to the speakers appropriately.

This player has VIRTUAL 3D SURROUND mode

You can use the 3D sound imaging to shift the sound of the rear speakers away from the actual speaker position (VIRTUAL REAR SHIFT) or to create 3 sets of virtual rear speakers from 1 set of actual rear speakers (VIRTUAL MULTI REAR) For details on the VIRTUAL 3D SURROUND mode, see page 48

Speaker placement

For the best possible surround sound, we recommend the following conditions

- Use higher performance speakers
- Use rear and center speakers that match your front speakers in size and performance.
- All speakers should be the same distance from the listening position
- Place the subwoofer between the front (L, R) speakers if possible

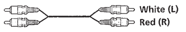
Note

Do not place the center or rear speakers farther away from the listening position than the front speakers

Required cords

Audio cords (not supplied)

Two foı the 5 1CH OUTPUT FRONT and REAR jacks



Monaural audio cords (not supplied)

Two for the 5 1CH OUTPUT CENTER and WOOFER jacks

S video cord (supplied)

One for the S VIDEO OUT jacks

Notes

- Do not connect the power cord to an AC outlet or press the POWER switch before completing all connections
- The cord connectors should be fully inserted into the jacks Loose connection may cause hum and noise
- Jacks and plugs of the connecting cords are color-coded as follows:
  Red jacks and plugs: Right audio channel
  White jacks and plugs: Left audio channel
  You can use eitheı red or white cables to connect the centeı speaker and subwoofer
- When you connect the component via the DIGITAL OUT OPTICAL or COAXIAL connector using an optical or coaxial digital connecting cord (not supplied), see page 11

Setups for the player

Some setups are necessary for the player depending on the components to be connected

Use the setup display or the Control Menu display to change the various settings

For details on using the setup display, see page 55

For details on enjoying Digital Cinema Sound, see page 48

- **To enjoy Dolby Digital surround sound by connecting the player to a receiver (amplifier) with 5.1 channel inputs**
  Set each speaker position or distance, etc See page 65

* Manufactured under license from Dolby Laboratories "Dolby," "AC-3," "Pro Logic" and the double-D symbol ⅅ are trademarks of Dolby Laboratories

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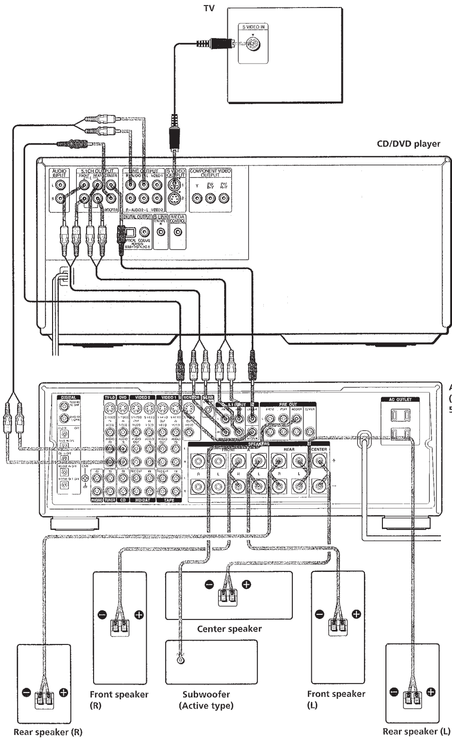
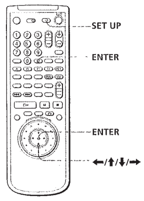


Selecting the Language for On-Screen Display

You can select the language for the setup display, the Control Menu display or the messages displayed on the screen The default setting is "ENGLISH "



1 Press SET UP and select "LANGUAGE SETUP" using ↑/↓, and then press ENTER.

LANGUAGE SETUP
OSD: ENGLISH
DVD MENU: ENGLISH
AUDIO: ORIGINAL
SUBTITLE: AUDIO FOLLOW
To set, press ←↑↓→, then ENTER
To quit, press SETUP .

2 Select "OSD" using ↑/↓, then press → or ENTER.

LANGUAGE SETUP
OSD: ENGLISH
DVD MENU: ENGLISH
AUDIO: FRENCH
SUBTITLE: SPANISH
To set, press ←↑↓→, then ENTER .
To quit, press SETUP.

3 Select "FRENCH" using ↑/↓, then press ENTER.

CHOIX DE LA LANGUE
ECRANS: FRANÇAIS
MENU DVD : ANGLAIS
AUDIO: ORIGINAL
SOUS-TITRE: IDEM AUDIO
Pour régler, appuyez sur ←↑↓→, puis sur ENTER. Pour quitter, appuyez sur SETUP .

To cancel using the setup display

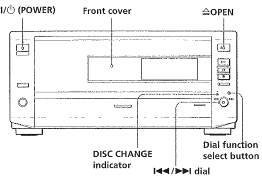
Press SET UP.

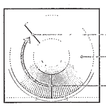
Note

For the languages you can select, see page 58

Inserting Discs

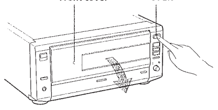
You can insert up to 200 discs into this player





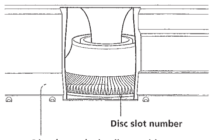
1 Press I/⏻ (POWER) to turn on the player.

2 Press ≜OPEN.



3 Press the dial function select button to turn the DISC CHANGE indicator on.

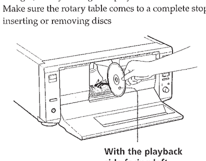
4 Turn the I◀◀/▶▶I dial until you find the disc slot where you insert a disc, while checking the disc slot number indicated in the front panel display or by the slot.



5 Insert a disc with the playback side facing left.

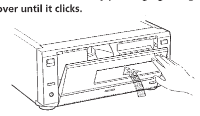
Notes

- Make suıe you have inseıted the disc into each slot at a right angle to the rotary table. If the disc is not put in straight, it may damage the playeı oı the disc
- Make sure the rotary table comes to a complete stop before inserting or removing discs



6 Repeat Steps 4 and 5 to insert more discs.

7 Close the front cover by pressing right edge of the cover until it clicks.



The rotary table tuıns and the disc slot at the loading position is set to the playing position

Always close the front cover except when you insert or remove discs

You can select a disc slot number by skipping by 10 slots

When you select the disc slot number in Step 4, press DISC SKIP +/– on the remote Ten disc slots each before and after from the current disc slot number will be skipped

You can select slot 1 directly

Press EASY PLAY in Step 4 The rotary table turns and slot 1 comes to the loading position

Notes
- When you insert an 8 cm (3-inch) CD, be sure to attach a Sony CSA-8 adaptor (not supplied) to the disc
  Do not insert an empty 8 cm (3-inch) CD adaptor (CSA-8) It may damage the player
- Do not attach anything such as seals or sleeves to discs It may damage the player or the disc
- If you drop a disc into the player and the disc does not go into the slot correctly, consult your nearest Sony dealer
- When transporting the player, remove all discs from the player

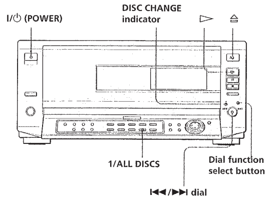
Removing discs
After following Steps 1 to 4 of "Inserting Discs" on page 15, remove the discs Then close the front cover

Playing Discs

This chapter describes how to play a DVD/CD/VIDEO CD.

Playing Discs DVD VIDEO CD CD

Depending on the DVD or VIDEO CD, some operations may be different or restricted Refer to the instructions supplied with your disc



1 Make settings on your TV.
Turn on the TV and select the video input so that you can view the pictures from this player

When using a receiver (amplifier)
Turn on the receiver (amplifier) and select the appropriate position so that you can listen to the sound from this player

2 Press I/⏻ (POWER) to turn on the player.
The indicator (red) above the I/⏻ (POWER) button changes to green and the front panel display lights up

3 Press the dial function select button to turn on the DISC CHANGE indicator.

4 Turn the ⏮/⏭ dial until you find the disc slot where you insert a disc, while checking the disc slot number indicated in the front panel display or by the slot, then press the ⏮/⏭ dial.

5 Press ▷.
The player starts playing back Adjust the volume on the TV or the receiver (amplifier)

After following Step 5
■When playing a DVD
A DVD menu or title menu may appear on the TV screen (see page 21)
■When playing a VIDEO CD
The menu screen may appear on the TV screen depending on the VIDEO CD You can play the disc interactively, following the instructions on the menu screen (PBC Playback, see page 22)

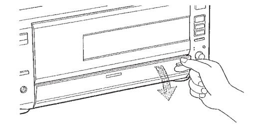
You can turn on the player using the remote
Press I/⏻ (POWER) when the indicator above the I/⏻ (POWER) button on the front panel is lit in red

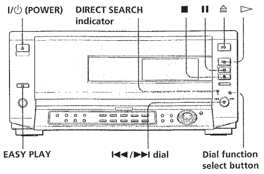
You can skip empty disc slots
When you select the disc slot number in Step 4, press DISC SKIP +/– on the remote You can skip empty disc slots and locate next disc

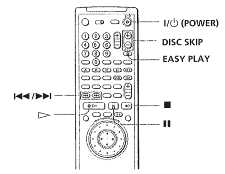
You can select the disc mode
You can choose whether all discs are played (ALL DISCS mode) or only 1 disc is played (1 DISC mode)
Press 1/ALL DISCS Each time you press the button, 1 IDSC or ALL DISCS mode is selected (see page 41)

Notes
- If you leave the player or the remote in pause or stop mode for 15 minutes, the screen saver image appears automatically. To make the screen saver image go away, press ▷ (If you want to set the screen saver function to off, see page 59.)
- The indicator above the I/⏻ (POWER) button lights up in red when the power is turned off
- If you cannot select the disc in Step 4, the disc is not included in the current folder Press FOLDER ALL (the Disc Explorer appears), then select the disc. See "Displaying the information of the loaded discs" (page 26)
- You cannot select the empty disc slots in Step 4

To open the control panel
Pull PANEL OPEN lightly





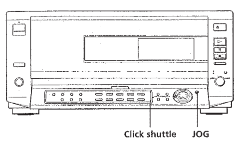


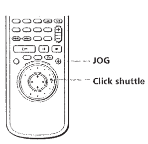
To	Operation
Play from the disc in slot 1	Press EASY PLAY.
Stop	Press ■.
Pause	Press II.
Resume play after pause	Press II or ▷.
Go to the next chapter, track or scene in continuous play mode	On the player: Press the dial function select button to turn on the DIRECT SEARCH indicator and turn the ⏮/⏭ dial clockwise On the remote: Press ⏭
Go back to the preceding chapter, track or scene in continuous play mode	On the player: Press the dial function select button to turn on the DIRECT SEARCH indicator and turn the ⏮/⏭ dial counterclockwise On the remote: Press ⏮.
Stop play and remove the disc	Press ≙

You can play discs in various modes such as Program Play using the on-screen menu (Control Menu) For operations of Control Menu, see page 32

Playing at Various Speeds/Frame by Frame DVD VIDEO CD CD

Using the click shuttle and the JOG button/indicator, you can play back a DVD/CD/VIDEO CD at various speeds or frame by frame Each time you press JOG, it changes between shuttle mode and jog mode

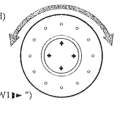




To change the playback speed (Shuttle mode)
Turn the click shuttle The playback speed changes depending on the turning direction and angle as follows:

When you play back a DVD

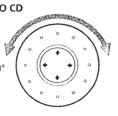
FF2►► (about 30 times the normal speed)
⇕
FF1►► (about 10 times the normal speed)
⇕
×2► (about twice the normal speed)
⇕
PLAY► (Normal speed)
⇕
SLOW1I► (playback direction)
⇕
SLOW2I► (playback direction – slower than "SLOW1I► ")
⇕
PAUSEII
⇕
SLOW2◄I (opposite direction – slower than "SLOW1◄I ")
⇕
SLOW1◄I (opposite direction)
⇕
×2◄ (about twice the normal speed)
⇕
FR1◄◄ (about 10 times the normal speed)
⇕
FR2◄◄ (about 30 times the normal speed)



If you turn the click shuttle quickly, the playback speed goes to FF2►►/FR2◄◄ at once

When you play back a CD/VIDEO CD

FF2►► (Faster than "FF1►►")
⇕
FF1►►
⇕
×2► (about twice the normal speed)*
⇕
PLAY► (Normal speed)
⇕
SLOW1I► (playback direction)**
⇕
SLOW2I► (playback direction – slower than "SLOW1I► ")**
⇕
PAUSEII
⇕
FR1◄◄
⇕
FR2◄◄ (Faster than "FR1◄◄")



* CD Only
** VIDEO CD Only

If you turn the click shuttle quickly, the playback speed goes to FF2►►/FR2◄◄ at once

To return to continuous play
Press ▷

Note
Depending on the DVD/VIDEO CD, you may not be able to do some of the operations described

Playing at Various Speeds/Frame by Frame

To play the disc frame by frame changing the playback speed (Jog mode) DVD VIDEO CD

1 Press JOG.
JOG lights up during jog mode When you press JOG on the player, it pauses

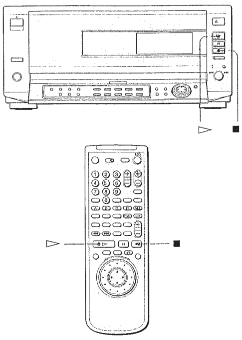
2 Turn the click shuttle.
Depending on the turning speed, the playback goes to frame-by-frame in the direction that the click shuttle is turned. If you turn the click shuttle with constant speed for a while, the playback speed goes to slow or normal

To return to continuous play
Press ▷

Notes
- The JOG indicator shows the mode of the corresponding click shuttle For example, when the JOG indicator on the remote is not lit, the remote click shuttle will remain in the shuttle mode even if the indicator on the player is lit
- If you don't operate the click shuttle for about 20 seconds after pressing JOG, it returns to shuttle mode on the remote On the player, it stays in jog mode

Resuming Playback from the Point Where You Stopped the Disc (Resume Play) DVD VIDEO CD CD

The player stores the point where you stopped the disc and if "RESUME" appears on the front panel display. You can resume playback from that point
As long as you do not open the disc tray, Resume Play is available even if you turn the power off



1 While playing a disc, press ■ to stop playback.
"RESUME" appears in the front panel display and "When playing next time, disc restarts from point you stopped " appears on the TV screen
If "RESUME" does not appear, Resume Play is not available

2 Press ▷.
The player starts playback from the point where you stopped the disc in Step 1

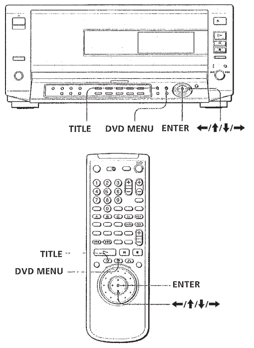
To play from the beginning of the disc
When the playing time appears on the front panel display before you start playing, press ■ to reset the playing time, then press ▷

Notes
- Resume Play may not be available depending on the DVD
- Resume Play is not available in Shuffle or Program Play mode
- Depending on where you stopped the disc, the player may resume playback from a different point
- The point where you stopped playing is cleared when:
  - you open or close the front cover
  - you disconnect the AC power cord
  - you change the play mode
  - you start playback after selecting a title, chapter or track
  - you change the settings of "TV TYPE" in "SCREEN SETUP" in the setup display
  - you change the settings of "PARENTAL CONTROL" in "CUSTOM SETUP" in the setup display

Using the Menu for Each DVD DVD

Using the title menu

A DVD is divided into long sections of a picture or a music piece called "titles " When you play a DVD which contains several titles, you can select the title you want using the title menu



1 Press TITLE.
The title menu appears on the TV screen The contents of the menu vary from disc to disc

2 Press ←/↑/↓/→ to select the title you want to play.
Depending on the disc, you can use the number buttons to select the title

3 Press ENTER.
The player starts playing the selected title

Notes
- Depending on the DVD, you may not be able to select the title
- Depending on the DVD, a "title menu" may simply be called a "menu" or "title " in the instructions supplied with the disc "Press ENTER " may also be expressed as "Press SELECT "

Using the DVD menu

Some DVDs allow you to select the disc contents using the menu When you play these DVDs, you can select the language for the subtitles, the language for the sound, etc , using the DVD menu

1 Press DVD MENU.
The DVD menu appears on the TV screen The contents of the menu vary from disc to disc

2 Press ←/↑/↓/→ to select the item you want to change.
Depending on the disc, you can use the number buttons to select the item

3 To change other items, repeat Step 2.

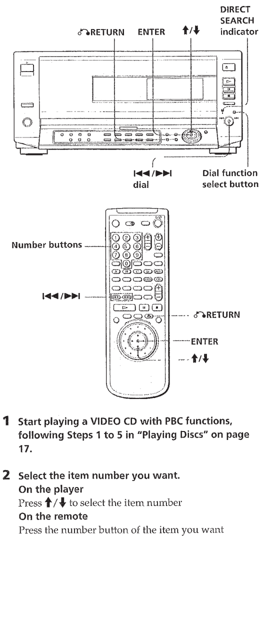
4 Press ENTER.

If you want to select the language for the DVD menu
Change the setting using "LANGUAGE SETUP" in the setup display. For details, see page 58

Note
Depending on the DVD, a "DVD menu" may simply be called a "menu" in the instructions supplied with the disc

Playing VIDEO CDs with PBC Functions (PBC Playback) VIDEO CD

When playing VIDEO CDs with PBC functions (Ver 2 0 discs), you can enjoy simple interactive operations, operations with search functions, etc
PBC Playback allows you to play VIDEO CDs interactively, following the menu screen on the TV screen On this player, you can use the number buttons, ENTER, |◀◀, ▶▶|, ↑/↓ and ↶RETURN during PBC Playback When you use the |◀◀ /▶▶| dial on the player, press the dial function select button to turn on the DIRECT SEARCH indicator



1 Start playing a VIDEO CD with PBC functions, following Steps 1 to 5 in "Playing Discs" on page 17.

2 Select the item number you want.
On the player
Press ↑/↓ to select the item number
On the remote
Press the number button of the item you want

3 Press ENTER.

4 Follow the instructions on the menu screen for interactive operations.
Refer to the instructions supplied with the disc, as the operating procedure may differ according to the VIDEO CD

Going back to the menu screen
Press ↶RETURN, |◀◀, or ▶▶|

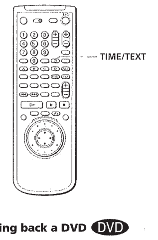
When playing VIDEO CDs with PBC functions
PBC playback starts automatically.

To cancel PBC playback of a VIDEO CD with PBC functions and play the disc in continuous play mode
There are two ways.
- Before you start playing, select the track you want using |◀◀ or ▶▶|, then press ENTER or ▷
- Before you start playing, select the track number using the number buttons on the remote, then press ENTER or ▷
  "Play without PBC" appears on the TV screen and the player starts continuous play. You cannot play still pictures such as a menu screen.
  To return to PBC playback, press ■ twice then press ▷

Note
Depending on the VIDEO CD, "Press ENTER " in Step 3 may be expressed as "Press SELECT " in the instructions supplied with the disc

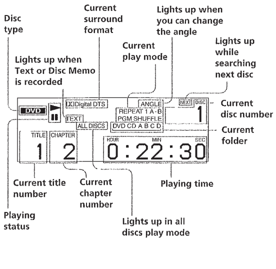
Using the Front Panel Display DVD VIDEO CD CD

You can check information about the disc, such as the total number of the titles or the tracks or remaining time, using the front panel display.



When playing back a DVD DVD

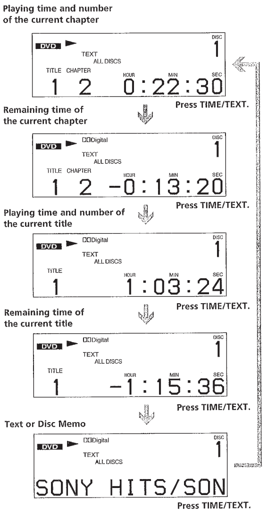
Display information while playing a disc



Checking the remaining time

Press TIME/TEXT

Each time you press TIME/TEXT while playing the disc, the display changes as shown in the following chart



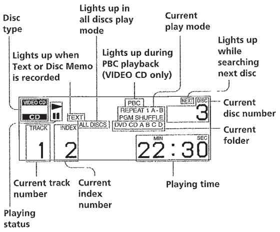
Notes

- Depending on the DVD, the chapter number or time may not appear or you may not be able to change the front panel display.
- During Shuffle Play or Program Play, the playing time of the title and the remaining time of the title are not displayed

When playing back a CD/VIDEO CD

VIDEO CD CD

Display information while playing a disc



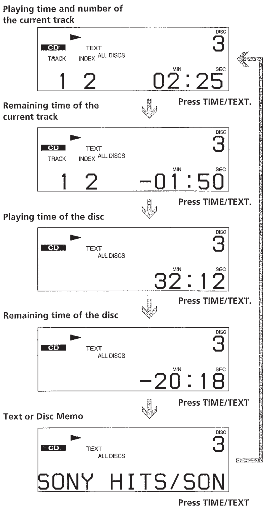
When playing VIDEO CDs with PBC functions

The current scene number is displayed instead of the current track number and the current index number In this case, the front panel display does not change when you press TIME/TEXT If a TEXT or Disc Memo is recorded on the disc, the front panel display changes to "Text or Disc Memo" display when you press TIME/TEXT (see page 28)

Checking the remaining time

Press TIME/TEXT

Each time you press TIME/TEXT while playing a disc, the display changes as shown in the following chart



Note

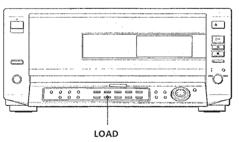
While you are doing Shuffle Play, Program Play, or PBC playback, the playing time of the disc and the remaining time of the disc are not displayed

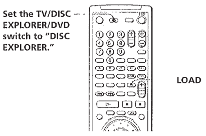
Displaying the Disc Information (Disc Explorer)

DVD VIDEO CD CD

You can check the contents of each disc loaded

Loading the disc information





On the player:

Press LOAD when the player is in stop mode.

On the remote:

1. **Set the TV/DISC EXPLORER/DVD switch to DISC EXPLORER.**
2. **Press LOAD in stop mode.**

The player reads the disc information of all the discs and loads it into memory so that the disc type, titles and other text information can be displayed

To cancel loading

Press ■

The player can load the disc information even when the power is turned off.

Press LOAD before turning on the player. The player reads and loads all the disc information When loading has been done, the power is turned off

Note

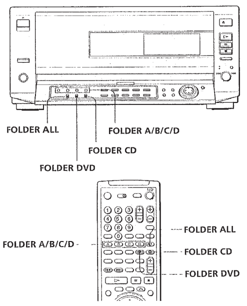
It will take about 30 seconds to read one disc

Displaying the information of the loaded discs

You can look at the loaded disc information on the Disc Explorer, and also select the disc to be played on the Disc Explorer

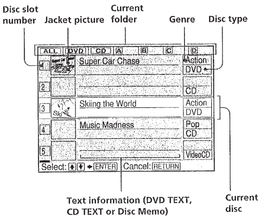
The player has 7 folders (ALL, DVD, CD, A to D) and can display the Disc Explorer of each folder

All the discs in the player are filed in the "ALL" folder At the same time, DVDs are automatically filed in the "DVD" folder, and CDs and VIDEO CDs are in the "CD" folder You can file your discs as you like in the A to D folders See "Filing Discs in the Folder" (page 27)



Press the folder button (FOLDER ALL/DVD/CD/A/B/C/D) of the desired folder in stop mode.

The Disc Explorer of the selected folder appears



Jacket picture

The jacket picture recorded on the disc appears automatically. If the jacket picture is not recorded, the genre picture recorded in the memory of the player is displayed when you select the genre

Text information (DVD TEXT, CD TEXT or Disc Memo)

The text information (DVD TEXT or CD TEXT) recorded on the disc appears automatically. If no text information is recorded, you can store the text information (Disc Memo) yourself (page 28)

Genre

You can select the genre of the disc yourself (page 30)

Disc type

The disc type appears automatically. "?" appears when the player has not loaded the disc information in the memory

To select the disc on the Disc Explorer

1. **Select the folder using the FOLDER buttons.**
   The Disc Explorer of the selected folder appears
2. **Select the disc by one of the following operations.**
   - pressing ↑/↓
   - pressing the number buttons and ENTER
   - pressing the dial function select button to turn on the DISC CHANGE indicator, followed by turning the ⏮/⏭ dial on the player
   - pressing DISC SKIP +/– on the remote
3. **Press ENTER.**
   The Disc Explorer disappears and playback starts

To cancel using the Disc Explorer

Press ↶RETURN

Notes

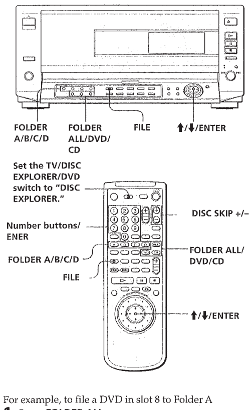
- If you press a FOLDER button during playback, the playback stops and the Disc Explorer appears In this case, the Resume Play is not available
- Even if you have removed the disc from the player, the disc information of the disc remains on the Disc Explorer until you load the disc information again by pressing LOAD or place a new disc in the same slot and play it
- If you have inserted a disc whose disc information has not been loaded yet, you cannot select and play the disc on the Disc Explorer The player skips the disc whose disc information differs from the loaded disc information, and plays the next disc However, if you select FOLDER ALL, the disc is played
- Even if the disc has the jacket picture recorded, the jacket picture may not appear on the Disc Explorer

Filing Discs in the Folder

DVD VIDEO CD CD

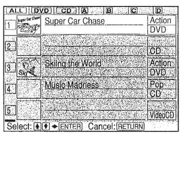
You can file your discs as you like in four individual folders, A to D Even if you file discs from Folder ALL, DVD or CD to Folder A to D, those discs are not deleted from Folder ALL, DVD or CD You can file up to 200 discs in one folder, and the same disc in different folders

If you file your favorite discs in a folder (A to D), you can play only those discs, or set Program Play, Shuffle Play and Repeat Play for the discs within the folder

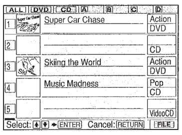


For example, to file a DVD in slot 8 to Folder A

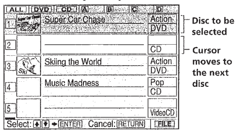
1. **Press FOLDER ALL.**
   You can also press FOLDER DVD
   The Disc Explorer of Folder ALL appears



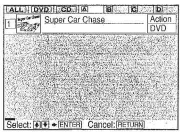
2. **Press FILE.**
   "FILE" appears at the right bottom corner



3. **Select the disc using the number buttons, then press ENTER.**
   You can also use ↑/↓ and DISC SKIP +/–
4. **Press ENTER.**
   To file other discs repeat Steps 3 and 4



5. **Press FOLDER A.**
   "FILE" disappears from the Disc Explorer. Then the Disc Explorer of Folder A including the selected disc appears



To cancel the file mode

Press ↶RETURN "FILE" disappears from the Disc Explorer.

You can sort the discs by genre or text information

The discs are listed first by slot number in the Disc Explorer You can then sort the discs by desired genre or text and store them (page 31)

Deleting discs from a folder

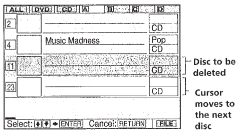
You can delete unnecessary discs from Folder A to D
You cannot delete discs from Folder ALL, DVD or CD unless you remove the disc from the player

1 Press the FOLDER (A/B/C/D) button of the disc you want to delete.
The Disc Explorer of the selected folder appears

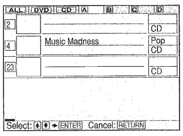
2 Press FILE.
"FILE" appears at the right bottom corner

3 Select the disc using the number buttons, then press ENTER.
You can also use ↑/↓ and DISC SKIP +/–

4 Press ENTER.
To delete other discs, repeat Steps 3 and 4



5 Press CLEAR.
The disc disappears from the folder "FILE" disappears from the Disc Explorer

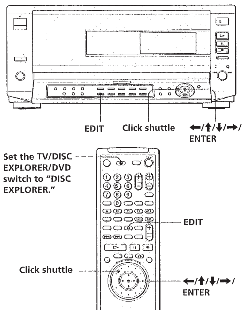


To cancel the file mode
Press ↩RETURN. "FILE" disappears from the Disc Explorer

To cancel using the Disc Explorer
Press ↩RETURN

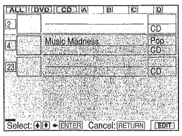
Labeling Discs (Disc Memo)/ Folders and Indicating the Genre DVD VIDEO CD CD

When DVD TEXT or CD TEXT is not recorded on the disc, you can label the disc with a personal title of 16 characters (Disc Memo) or the folder with 3 characters on the Disc Explorer
The Disc Memo can be anything you like, such as a title, musician's name, genre or date of purchase
On the Disc Explorer, you can indicate the genre of the disc so that you can sort the disc by the genre

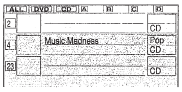


Labeling a disc or folder

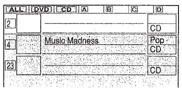
1 Select the disc or folder you want to label.
To label a disc:
Select the disc on the Disc Explorer, then press EDIT.
The selected disc only is highlighted and "EDIT" appears at the right bottom corner



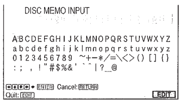
To label a folder:
1 Press EDIT.
2 Press ↑.
The folder A is highlighted



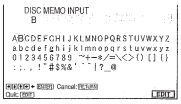
3 Select the folder you want to label by pressing ←/→.



2 Press ENTER.
The DISC MEMO INPUT display appears when you have selected a disc.
The FOLDER NAME INPUT display appears when you have selected a folder

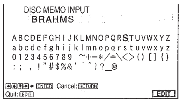


3 Select the character by pressing ←/↑/↓/→ or by turning the click shuttle.
The selected character changes color

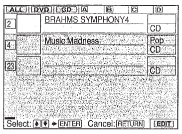


4 Press ENTER.

5 Repeat Steps 3 and 4 to input other characters.



6 When you have entered all the characters for the Disc Memo or folder name, press EDIT.
The DISC MEMO INPUT display or the FOLDER NAME INPUT display disappears and the Disc Memo or folder name is stored



7 Press ↩RETURN.
"EDIT" disappears from the Disc Explorer.

To correct the characters
You can correct the characters by using the ⏮/⏭ dial on the player or ⏮/⏭ on the remote. To use the ⏮/⏭ dial, turn on the DIRECT SEARCH indicator by pressing the dial function select button
- To erase a character:
  1 Move the cursor to the character you want to erase by pressing ⏮/⏭ or turning the ⏮/⏭ dial
  2 Press CLEAR
- To insert or overwrite a character:
  1 Move the cursor to the character you want to correct by pressing ⏮/⏭ or turning the ⏮/⏭ dial
  2 Select the correct character by pressing ←/↑/↓/→ or by turning the click shuttle
  3 To insert the character, press ENTER
  To overwrite, don't press ENTER but move the cursor by pressing ⏭ or turning the ⏮/⏭ dial clockwise

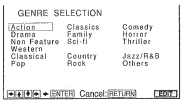
Note
Even if you have removed the disc from the player, the disc information of the disc remains on the Disc Explorer until you load the disc information again by pressing LOAD or place a new disc in the same slot and play it

Selecting a genre

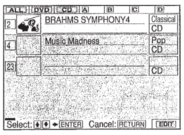
1 Select the disc for which you want to select a genre.

2 Press EDIT.

3 Press →, then ENTER.
The GENRE SELECTION display appears



4 Select the genre by using the ←/↑/↓/→, then press ENTER.
If no jacket picture is recorded in the disc, the genre picture in the memory of the player is displayed

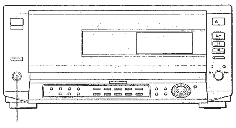


5 Press ↩RETURN.
"EDIT" disappears from the Disc Explorer

Labeling the disc or folder using a keyboard

To label the disc or folder, you can use an IBM compatible PC keyboard of the USA model* (not supplied) on the DISC MEMO INPUT or FOLDER NAME INPUT display.

* Power consumption must be 120 mA or less



1 Connect a keyboard to the KEYBOARD jack on the front panel when the power of the player is not on.

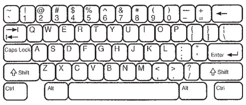
2 Do Steps 1 and 2 on page 29 to display the DISC MEMO INPUT or FOLDER NAME INPUT display.

3 Input the characters on the keyboard.

4 Press ENTER on the keyboard to store the Disc Memo or folder name.
The DISC MEMO INPUT display or the FOLDER NAME INPUT display disappears and the Disc Memo or folder name is stored

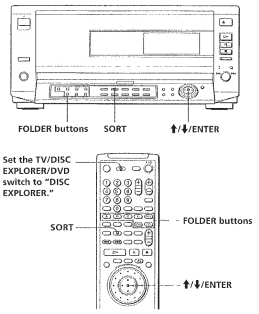
5 Press ↩RETURN.
"EDIT" disappears from the Disc Explorer

Notes
- If the cursor keys do not work correctly and you cannot complete the task using the keyboard, disconnect the keyboard then reconnect it to the player and try again
- If the keyboard is not the USA model, the characters may be input differently from those on the keys
The USA keyboard layout is shown below

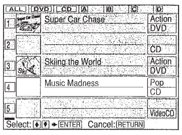


Sorting Discs DVD VIDEO CD CD

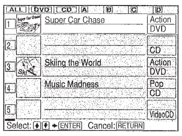
You can sort the discs in the folder by disc slot number, text information (DVD TEXT/CD TEXT/Disc Memo) or genre
The text information is sorted alphabetically.
In case of the genre, the selected genre comes first



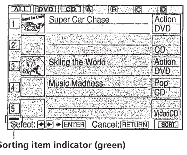
1 Select the folder you want to sort by using the FOLDER buttons.



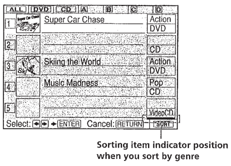
2 If you want to sort by text information or genre, select the disc which has the desired text information or the genre by pressing ↑/↓.



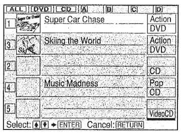
3 Press SORT.
The selected disc only is highlighted and "SORT" appears at the right bottom corner



4 Select the item you want to sort by pressing ←/→.
You can select the disc number, text information or genre. The sorting item indicator moves to the selected item



5 Press ENTER.
The discs are sorted and re-displayed. The sorted order remains even if the power of the player is turned off



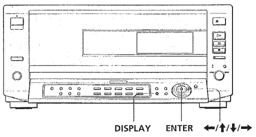
The disc order in the same genre
The discs in the same genre are sorted by numerical order of the disc slot number

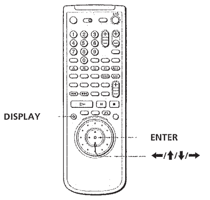
Using Various Functions with the Control Menu

This chapter describes how to play discs in various modes and how to use the convenient features of the on-screen menu (Control Menu).

Using the Control Menu Display

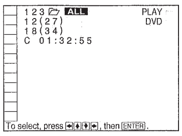
Using the Control Menu display, you can select the start point, change the angles, adjust the picture, set for Digital Cinema Sound, etc
The items are different depending on the kind of disc
For details on each Control Menu display item, see pages 35 to 54



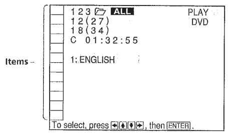


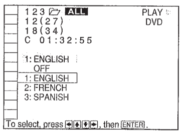
1 **Select the desired folder.**

2 **Press DISPLAY to show the Control Menu display on the TV screen.**

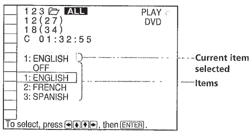


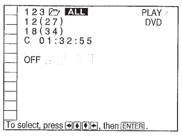
3 **Select the item you want using ↑/↓, then press → or ENTER.**





4 **Select the item you want using ↑/↓, then press ENTER.**





Note
Some Control Menu display items require operations other than selecting the setting For details on these items, see the relevant pages

To cancel using the Control Menu display

Press ↶RETURN

To display other items

Each time you press DISPLAY, the Control Menu display changes as follows:

→Control Menu display 1
↓
Control Menu display 2
(The items except the first three items from the top are changed to other items)
↓
ADVANCED display (see page 54)
↓
Control Menu display off

You can display some items using the remote
Some items can be displayed by pressing the button of the remote In this case, only the item you selected is displayed For the item and operations using the remote, see the pages of each item

Control Menu Item List

DISC **(page 35)**
TITLE **(DVD only) (page 35)**
CHAPTER **(DVD only) (page 35)**
TRACK **(VIDEO CD/CD only) (page 35)**
INDEX **(VIDEO CD/CD only) (page 35)**
SCENE **(VIDEO CD during PBC playback only) (page 35)**
You can search by selecting the disc/title/chapter/track/index/scene

TIME/TEXT **(pages 36, 37, 38)**
TIME/MEMO **(pages 36, 37, 38)**
You can check the playing time and remaining time of the current title/chapter/track and the total remaining time of the disc
You can search by inputting the time code
You can check the DVD TEXT or CD TEXT of the disc on the TV screen and the front panel display.

AUDIO **(page 38)**
With DVDs recorded with multilingual sounds, you can select the language you want while playing the DVD
With multiplex CDs or VIDEO CDs, you can select the sound from the right or left channel and listen to the sound of the selected channel through both the right and left speakers

SUBTITLE **(DVD only) (page 40)**
With DVDs on which multilingual subtitles are recorded, you can change the subtitle language whenever you want while playing the DVD, and turn it on or off whenever you want

ANGLE **(DVD only) (page 40)**
With DVDs on which various angles (multi-angles) are recorded, you can change the angles on the scene for which multi-angles are recorded

1/ALL DISCS **(page 41)**
Select the 1 disc play mode or all discs play mode to set Program Play, Shuffle Play and Repeat Play

PROGRAM **(page 42)**
You can play the contents of the disc in the order you want by arranging the order of the titles, chapters or tracks on one disc or on all discs to create your own program

SHUFFLE **(page 44)**
You can have the player "shuffle" titles, chapters or tracks on one disc or on all discs, and play them in a random order. The playing order may differ from the previous "shuffling "

REPEAT **(page 45)**
You can play all discs, all the titles/tracks on a disc, or a single title/chapter/track repeatedly

A-B REPEAT **(page 46)**
You can play a specific portion of a title, chapter, or track repeatedly.

VIRTUAL 3D SURROUND **(page 48)**
Select the mode to enjoy multi-channel surround sound such as Dolby Digital
Even if you connect only front speakers, Virtual Enhanced Surround (VES) lets you enjoy 3D sound by using 3D sound imaging to create virtual rear speakers from the sound of the front speakers (L, R) without using actual rear speakers
When you connect 2 front speakers and 2 rear speakers, you can use the 3D sound imaging to shift the sound of the rear speakers away from the actual speaker position (VIRTUAL REAR SHIFT) or to create 3 sets of virtual rear speakers from 1 set of actual rear speakers (VIRTUAL MULTI REAR)
You can feel the more effective 3D sound when you connect a receiver (amplifier) with 5 1 channel inputs, 2 front speakers, 2 rear speakers, 1 center speaker and 1 subwoofer

DNR **(DVD/VIDEO CD only) (page 50)**
You can make the picture clearer by reducing the picture noise

VIDEO EQ **(DVD/VIDEO CD only) (page 50)**
You can adjust the video output of the DVD or VIDEO CD from the player, not from the TV, to obtain the picture quality you want

ANGLE VIEWER **(DVD only) (page 52)**
With DVDs on which various angles (multi-angles) for a scene are recorded, you can display all the angles recorded on the disc on the same screen, and start playback in continuous mode at the chosen angle directly

STROBE PLAYBACK **(DVD/VIDEO CD only) (page 52)**
You can display 9 consecutive sections of the disc on the screen In this case, the sections show still images

TITLE VIEWER **(DVD only) (page 53)**
CHAPTER VIEWER **(DVD only) (page 53)**
TRACK VIEWER **(VIDEO CD only) (page 53)**
You can check the titles, chapters and tracks of the disc on the screen divided in 9 sections, and start playback from the chosen title, chapter or track

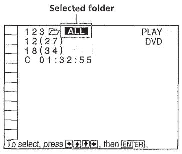
BOOKMARK **(DVD/VIDEO CD only) (page 53)**
You can have the player store specific portions of the disc in memory and play them immediately whenever you want without the need to search

ADVANCED **(DVD only) (page 54)**
You can check the play information about the bit rate, bit rate history or the position where the disc is played (layer)

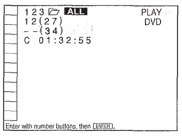
Searching for the Disc/Title/Chapter/Track/Index/Scene

You can search by selecting the disc/title/chapter/track/index/scene in the current folder.
Select "DISC," "TITLE," " CHAPTER," " TRACK", "INDEX" or "SCENE" after pressing DISPLAY
When you play back a DVD, "TITLE" and " CHAPTER" are displayed
When you play back a VIDEO CD/CD, "TRACK" and "INDEX" are displayed When you play back a VIDEO CD with PBC functions, "SCENE" is displayed

1 **Select "DISC," "TITLE," "CHAPTER," "TRACK," "INDEX" or "SCENE" using ↑/↓.**
"∗∗(∗∗)" is highlighted (∗∗ means optional number in this manual) Numbers in parentheses indicate the total number of titles, chapters, tracks, indexes or scenes



2 **Press → or ENTER.**
"∗∗(∗∗)" is changed to "— — (∗∗)"



3 **Select the number of the disc, title, chapter, track, index or scene you want to search for using the number buttons, then press ENTER.**
The player starts searching To cancel the number, press CLEAR before pressing ENTER

Searching for the Disc/Title/Chapter/Track/Index/Scene

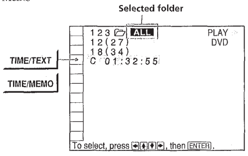
To cancel selecting
Press ↶RETURN

You can select a disc, chapter, track and scene directly by pressing the buttons on the remote or the player
See "Playing Discs" on page 18

Notes
- The number of titles, chapters or tracks displayed is that of the titles, chapters or tracks recorded on a disc
- The index numbers are not displayed during PBC playback of VIDEO CDs
- If you cannot search the desired disc in Step 3, the disc is not included in the current folder To search the desired disc from all the discs in the player, press FOLDER ALL to select the ALL folder As the Disc Explorer appears, press ↶RETURN to turn it off Then select the desired disc on the Control Menu display.

Checking the Playing Time and Remaining Time
DVD VIDEO CD CD

You can check the playing time and remaining time of the current title/chapter/track and the total remaining time of the disc
Press DISPLAY. Then press TIME/TEXT to change the time information
You can also check the DVD TEXT, CD TEXT and Disc Memo



When playing a DVD
■TIME/TEXT or TIME/MEMO
- C **:**:** : Playing time of the current chapter
- C –**:**:** : Remaining time of the current chapter
- T **:**:** : Playing time of the current title
- T –**:**:** : Remaining time of the current title

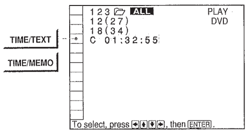
When playing a VIDEO CD (during PBC playback)
■TIME/MEMO
- **:** : Playing time of the current scene

When playing a VIDEO CD (in continuous play) or CD
■TIME/TEXT or TIME/MEMO
- T **:** : Playing time of the current track
- T –**:** : Remaining time of the current track
- D **:** : Playing time of the current disc
- D –**:** : Remaining time of the current disc

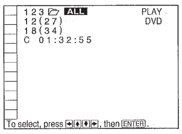
You can display the "TIME/TEXT" or "TIME/MEMO" display quickly
Press TIME/TEXT Each time you press the button, the time information changes

Selecting a Start Point Using the Time Code
DVD

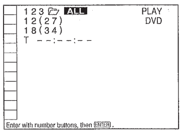
You can search by inputting the time code
Select "TIME/TEXT" or "TIME/MEMO" after pressing DISPLAY.
The time code corresponds to the approximate actual playing time For example, to search for a scene 2 hours 30 minutes 20 seconds past the beginning, input 2:30:20



1 Select "C **::** " (playing time of the current chapter).**



2 Press → or ENTER.
Time code changes to "T – – : – – : – –"



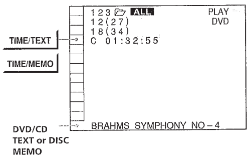
3 Input the time code using the number buttons, then press ENTER.
The player starts searching To cancel the number, press CLEAR before pressing ENTER

To cancel inputting
Press ↶RETURN

Note
When you input the time code, input the playing time of the title

Checking the Information of the Disc
DVD VIDEO CD CD

You can check the DVD TEXT or CD TEXT of the disc on the TV screen and the front panel display.
DVD TEXT and CD TEXT are information recorded on the disc which you cannot change
Press DISPLAY. If the disc has DVD TEXT or CD TEXT recorded, "TIME/TEXT" appears If a Disc Memo can be input in the disc, "TIME/MEMO" appears Press TIME/TEXT until DVD/CD TEXT or Disc Memo is displayed
The information is displayed at the bottom of the display.



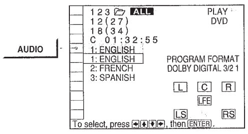
You can display the "TIME/TEXT" or "TIME/MEMO" display quickly
Press TIME/TEXT To display DVD/CD TEXT or Disc Memo, press TIME/TEXT until DVD/CD TEXT or Disc Memo is displayed

You can input the text information (Disc Memo)
You can input the Disc Memo on the Disc Explorer (see page 28)

Note
The DVD TEXT only in English is displayed

Changing the Sounds
DVD VIDEO CD CD

With DVDs recorded with multilingual sounds, you can select the language you want while playing the DVD
With multiplex CDs or VIDEO CDs, you can select the sound from the right or left channel and listen to the sound of the selected channel through both the right and left speakers In this case, the sound loses the stereo effect For example, with a disc containing a song, the right channel may output the vocals and the left channel may output the instrumental If you only want to hear the instrumental, you can select the left channel and hear it from both speakers
Select "AUDIO" after pressing DISPLAY.



■AUDIO
When playing a DVD
Select the language The languages you can select are different depending on the DVD When 4 digits are displayed, they represent the language code Select the language code from the list on page 78

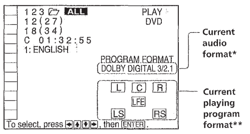
When playing a VIDEO CD or a CD
- STEREO : The standard stereo sound
- 1/L : The sound of the left channel (monaural)
- 2/R : The sound of the right channel (monaural)

You can display the "AUDIO" display quickly
Press AUDIO on the remote

Notes
- Depending on the DVD, you may not be able to change the languages even if multilingual sounds are recorded on the DVD
- While playing the CD/VIDEO CD, the standard stereo playback will be resumed when:
  - you open or close the disc tray
  - you turn the power off
- While playing the DVD, the sound may be changed when:
  - you open or close the disc tray
  - you change the title
- If the language is displayed as a 4 digit number, refer to the language code list on page 78

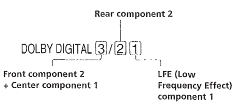
Displaying the audio information of the disc DVD

When you select "AUDIO," the playing channels are displayed on the screen
In Dolby Digital format, the signals from monaural to 5 1 channels can be recorded on a DVD Depending on the DVD the number of the recorded channels may be different



* "PCM," "DTS" or "DOLBY DIGITAL" is displayed In "DOLBY DIGITAL" case, the channels in the playing track are displayed by number as follows:

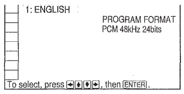
The case of Dolby Digital 5.1 ch:



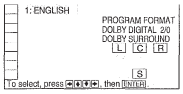
** The letters in the program format display mean the following:

L: Front (L)
R: Front (R)
C: Center (monaural)
LS: Rear (L)
RS: Rear (R)
S: Rear (monaural) – the rear component of the Dolby Surround processed stereo signal and the Dolby Digital signal
LFE: LFE (Low Frequency Effects)

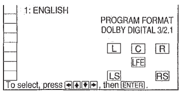
The display examples are as follows:
- PCM (stereo)



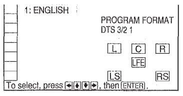
- Dolby Surround



- Dolby Digital 5 1ch



- DTS

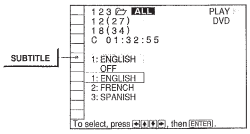


You can find Dolby Surround-encoded software by looking at the packaging
Use discs with the DOLBY DIGITAL logo In order to enjoy Dolby Digital playback you must use discs bearing this logo

Displaying the Subtitles

DVD

With DVDs on which subtitles are recorded, you can turn the subtitles on and off whenever you want while playing the DVD
With DVDs on which multilingual subtitles are recorded, you can change the subtitle language whenever you want while playing the DVD, and turn it on or off whenever you want For example, you can select the language you want to master and turn the subtitles on for better understanding
Select "SUBTITLE" after pressing DISPLAY



■SUBTITLE
Select the language The languages you can select are different depending on the DVD When 4 digits are displayed, they indicate the language code Select the language code from the list on page 78

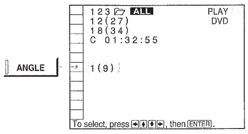
You can display the "SUBTITLE" display quickly
Press SUBTITLE on the remote Each time you press the button, the item changes

Notes
- When playing a DVD on which no subtitles are recorded, no subtitles appear.
- Depending on the DVD, you may not be able to turn the subtitles on even if they are recorded on it.
- Depending on the DVD, you may not be able to turn the subtitles off
- If the language is displayed as a 4-digit number, refer to the language code list on page 78
- The type and number of languages for subtitles vary from disc to disc
- Depending on the DVD, you may not be able to change the subtitles even if multilingual subtitles are recorded on it
- While playing the DVD, the subtitle may change when:
  – you open or close the disc tray
  – you change the title

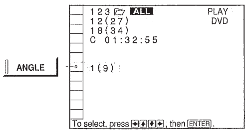
Changing the Angles

DVD

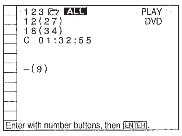
With DVDs on which various angles (multi-angles) for a scene are recorded, you can change the angles For example, while playing a scene of a train in motion, you can display the view from either the front of the train, the left window of the train or from the right window without having the train's movement interrupted
Select "ANGLE" after pressing DISPLAY. When the angles can be changed, the indicator of the "ANGLE" lights in green



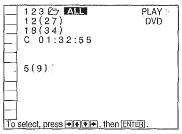
1 **Select "ANGLE."**



2 **Press ➡.**
The number of the angle changes to "– " The number in parentheses indicates the total number of angles



3 **Select the number of the angles using the number buttons or ⬆/⬇, then press ENTER.**
The angle is changed to the selected angle



Notes
- The number of angles varies from disc to disc or from scene to scene. The number of angles that can be changed on a scene is that of angles recorded for that scene
- Depending on the DVD, you may not be able to change the angles even if multi-angles are recorded on the DVD

You can specify the angle beforehand
Specify the angle when "ANGLE" is not displayed on the front panel display. When a scene on which multi-angles are recorded comes, the angle is automatically selected

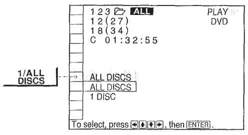
You can select the angle directly
Press ANGLE on the remote Each time you press the button, the angle changes

You can display different angles simultaneously (ANGLE VIEWER)
You can display all the angles recorded on the disc on the same screen, and start playback in continuous mode from the chosen angle directly. The angles are displayed on a screen divided in 9 sections For details, see page 52

Selecting the Disc Mode (1 Disc or All Discs)

DVD VIDEO CD CD

Before setting Program Play, Shuffle Play, or Repeat Play, you need select whether to set those play modes on one disc or all discs
Select "1/ALL DISCS" after pressing DISPLAY



■1/ALL DISCS
- ALL DISCS: allows you to set Program Play, Shuffle Play or Repeat Play for all the discs in the folder
- 1 DISC: allows you to set Program Play, Shuffle Play or Repeat Play for 1 disc only.

You can select the mode using the button of the player or remote
Press 1/ALL DISCS Each time you press the button, 1 DISC or ALL DISCS mode is selected

Using Various Functions with the Control Menu

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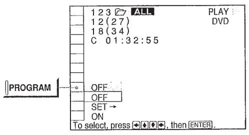
Creating Your Own Program (Program Play)

DVD VIDEO CD CD

You can play the contents of one disc or all discs in the order you want by arranging the order of the titles, chapters or tracks to create your own program One program can be stored in the player and contain up to 99 titles, chapters and tracks
Select "PROGRAM" after pressing DISPLAY When you select "ON," the indicator of the "PROGRAM" lights in green



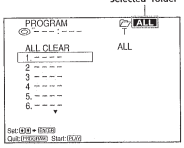
■PROGRAM
- OFF: plays normal
- SET➡: allows you to create your own program
- ON: plays Program Play.

Note
If the program contains a disc which is not included in the current folder, the disc will not be played during Program Play To play all the discs in the program, select the ALL folder before you start Program Play

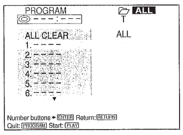
Creating the program

1 **Select "SET➡" in "PROGRAM."**
The programming display appears

Selected folder

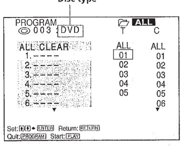


2 **Press ENTER.**



3 **Press the number button to select the disc, then press ENTER.**
You can play only the currently selected disc when you select "1 DISC" in "1/ALL DISCS " To program more than 1 disc, press 1/ALL DISCS and select "ALL DISCS "

Disc type*

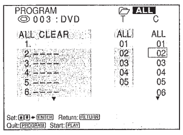


* "?" appears when the player has not loaded the disc information in the memory.

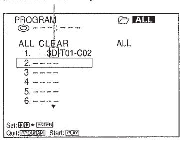
4 **Select the title, chapter or track you want to program using ⬆/⬇, then press ENTER.**
For example, select title1, chapter 2 in disc 3.

(You can also use the number buttons and ENTER button to select In this case, the selected number is displayed on the screen)

■When playing a DVD
When both titles and chapters are recorded on the disc, select the title, then the chapter

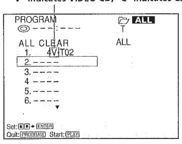


"D" indicates DVD.



■When playing a VIDEO CD or CD
Select the track you want to program

"V" indicates VIDEO CD; "C" indicates CD.



5 **To program other discs, titles, chapters or tracks, repeat Steps 3 and 4.**
The programmed discs, titles, chapters or tracks are displayed from 2 in order

6 **Press ▷ to start Program Play.**

To return to previous item
If you are selecting a disc, title, track or chapter, press ↶RETURN to return to previous item

To cancel Program Play
Press CLEAR

To cancel programming
Press PROGRAM

To change programming
To change the disc, select the program number you want to change using ⬆/⬇ after Step 1 or 4, then press ENTER Then do Steps 3 and 4
To change the title, chapter and track, select the desired one in Step 4

To cancel the programmed order
To cancel all the titles, chapters or tracks in the programmed order, select "ALL CLEAR" after Step 1 or 4, then press ENTER
To cancel the selected program, select the program using ⬆/⬇ after Step 1 or 4, then press CLEAR

The program remains even after the Program Play ends
When you press ▷, you can play the same program again

You can do Repeat Play or Shuffle Play of the programmed titles, chapters or tracks
During Program Play, press REPEAT or SHUFFLE Or set "REPEAT" or "SHUFFLE" to "ON" in the Control Menu display.

You can display the "PROGRAM" display quickly
Press PROGRAM

You can load the disc information
Press LOAD in stop mode (see page 25) so that the player reads and loads the disc information

Using Various Functions with the Control Menu

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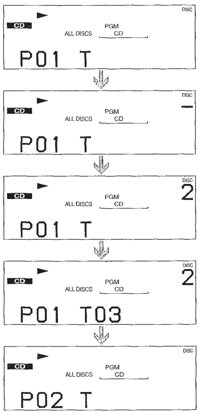
Creating Your Own Program (Program Play)

You can select discs, titles, chapters and tracks for the program by looking at the front panel display
You can program by looking at the front panel display instead of using the programming display on the TV screen.
When you select Track 3 in Disc number 2 in the CD folder for Program 1, the front panel display will appear as follows:

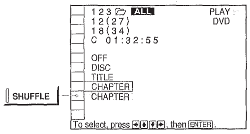


Notes
- The program is canceled when you turn the power off
- You may not be able to do Program Play depending on the DVD
- While you are doing PBC playback, you cannot set a program unless you stop playback first

Playing in Random Order (Shuffle Play)

DVD VIDEO CD CD

You can have the player "shuffle" discs, titles or tracks and play them in a random order The playing order may differ from the previous "shuffling "
Select "SHUFFLE" after pressing DISPLAY When you do not select "OFF," the indicator of the "SHUFFLE" lights in green



■SHUFFLE
Selects the setting of Shuffle Play.

When playing a DVD and when Program Play is set to OFF
- OFF: does not play a disc in random order
- DISC*: player "shuffles" discs in the folder and plays in a random order
- TITLE: player "shuffles" titles in the folder and plays in a random order
- CHAPTER: player "shuffles" chapters of DVDs in the folder and plays in a random order

When playing a VIDEO CD, CD or DVD (when Program Play is set to ON)
- OFF: does not play a disc in random order
- ON: player "shuffles" titles or tracks and plays in a random order

When playing a VIDEO CD or CD (when Program Play is set to OFF)
- OFF: does not play a disc in random order
- DISC*: player "shuffles" discs in the folder and plays in a random order
- TRACK: player "shuffles" tracks in the folder and plays in a random order

* Appears only when you select "ALL DISCS" in "1/ALL DISCS "

To cancel Shuffle Play
Press CLEAR

You can set Shuffle Play during stop
After selecting the item of "SHUFFLE," press ▷
The player starts Shuffle Play.

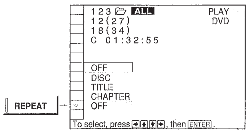
You can display the "SHUFFLE" display quickly
Press SHUFFLE

Notes
- Shuffle Play is canceled when:
  - you open or close the front cover
  - you turn the power off
- You may not be able to do Shuffle Play depending on the DVD
- Up to 96 chapters in a disc can be played in a random order when "CHAPTER" is selected

Playing Repeatedly (Repeat Play)

DVD VIDEO CD CD

You can play all discs, all the titles/tracks on a disc or a single title/chapter/track
In Shuffle or Program Play mode, the player repeats the titles or tracks in the shuffled or programmed order
You cannot do Repeat Play during PBC playback of VIDEO CDs (page 22)
You may not be able to do Repeat Play depending on the DVD
Select "REPEAT" after pressing DISPLAY When you do not select "OFF," the indicator of the "REPEAT " lights in green



■REPEAT
Selects the setting of Repeat Play

When playing a DVD and when Program Play and Shuffle Play are set to OFF
- OFF: does not play repeatedly
- DISC: repeats all the titles on the selected disc when you select "1 DISC" in "1/ALL DISCS," and repeats all titles on all discs in the folder when you select "ALL DISCS "
- TITLE: repeats the current title
- CHAPTER: repeats the current chapter

When playing a VIDEO CD/CD and when Program Play and Shuffle Play are set to OFF
- OFF: does not play repeatedly
- DISC: repeats all the tracks on the selected disc when you select "1 DISC" in "1/ALL DISCS," and repeats all tracks on all discs in the folder when you select "ALL DISCS "
- TRACK: repeats the current track

When Program Play or Shuffle Play is set to ON
- OFF: does not play repeatedly.
- ON: repeats Program Play or Shuffle Play.

To cancel Repeat Play
Press CLEAR

Playing Repeatedly (Repeat Play)

You can set Repeat Play during stop
After selecting the item of "REPEAT," press ▷
The player starts Repeat Play.

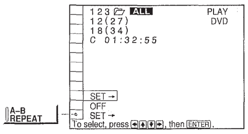
You can display the "REPEAT" display quickly
Press REPEAT

Note
Repeat play is canceled when you turn the power off

Repeating a Specific Portion (A←→B Repeat)

DVD VIDEO CD CD

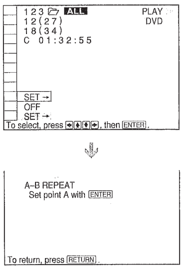
You can play a specific portion of a title, chapter, track repeatedly. This is useful when you want to memorize lyrics
During PBC Playback of VIDEO CDs (page 22), this function is available only while playing moving pictures
You may not be able to do A←→B Repeat Play depending on the DVD
Select "A-B REPEAT" after pressing DISPLAY During A←→B Repeat Play, the indicator of the "A-B REPEAT" lights in green



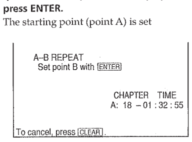
■A-B REPEAT
- SET→: sets the A and B points
- OFF: does not play a specific portion of a title/chapter/track repeatedly.

Setting a portion for A←→B repeat

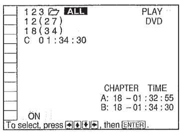
1 Select "SET→" in "A-B REPEAT."
The A←→B REPEAT setting display appears



2 During playback, when you find the starting point (point A) of the portion to be played repeatedly, press ENTER.
The starting point (point A) is set



3 When you reach the ending point (point B), press ENTER again.
The setting points are displayed and the player starts repeating this specific portion
"A-B" appears on the front panel display during A←→B repeat play.



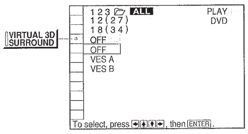
To cancel A←→B Repeat Play
Press CLEAR

Notes
- You can set A←→B Repeat on only one specific portion
- A←→B Repeat is canceled when:
  - you open or close the front cover
  - you turn the power off
- When you set A←→B Repeat, the settings for Shuffle Play and Program Play are canceled
- You may not be able to set A←→B Repeat, depending on the scene of the DVD or the VIDEO CD
- You cannot set the start point (point A) on one disc and ending point (point B) on other disc

Setting for Digital Cinema Sound (DVD) (VIDEO CD) (CD)

Select the mode to enjoy multi channel surround sound such as Dolby Digital
Even if you connect only front speakers, Virtual Enhanced Surround lets you enjoy 3D sound by using 3D sound imaging to create virtual rear speakers from the sound of the front speakers (L, R) without using actual rear speakers
When you connect 2 front speakers and 2 rear speakers, use 3D sound imaging to shift the sound of the rear speakers away from the actual speaker position (VIRTUAL REAR SHIFT) or to create 3 sets of virtual rear speakers from 1 set of actual rear speakers (VIRTUAL MULTI REAR)
You can feel the more effective 3D sound when you connect a receiver (amplifier) with 5 1 channel inputs, 2 front speakers, 2 rear speakers, 1 center speaker and 1 subwoofer
Select "VIRTUAL 3D SURROUND" after pressing DISPLAY twice When you select the item except "OFF," the indicator of the "VIRTUAL 3D SURROUND " lights in green

Note
To enjoy the original Dolby Digital sound through the 5 1CH OUTPUT connectors, set each speaker position or distance, etc For details on setting each speaker, see page 65



■VIRTUAL 3D SURROUND
Select the desired item For details on each item, see "Effects of each item "
- OFF
- VES A*
- VES B*
- NORMAL SURROUND
- ENHANCED SURROUND
- VIRTUAL REAR SHIFT
- VIRTUAL MULTI REAR

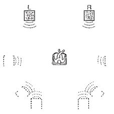
* These settings also effect the output from the LINE OUT (AUDIO 1, 2) connectors

Note
The items displayed are different depending on the settings of "SPEAKER SETUP" (page 65).
You can select only "OFF," "VES A" or "VES B" when you play back a disc and set "NONE" in "REAR" in "SIZE" under "SPEAKER SETUP" in the setup display.

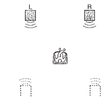
Effects of each item

OFF
Outputs all channel signals recorded on the disc For example, outputs 2-channel signals for stereo sound of the CD or 5-channel signals for Dolby Digital sound of the DVD When you connect fewer than 5 (+1) speakers, the player distributes the output signal for the missing speaker to other speakers appropriately.

VES (Virtual Enhanced Surround) A
Uses 3D sound imaging to create virtual rear speakers from the sound of the front speakers (L, R) without using actual rear speakers The virtual speakers are reproduced as shown in the illustration below



VES (Virtual Enhanced Surround) B
Uses 3D sound imaging to create virtual rear speakers from the sound of the front speakers (L, R) without using actual rear speakers The virtual speakers are reproduced as shown in the illustration below

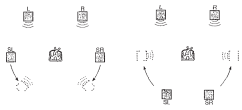


NORMAL SURROUND
Software with 2 channel audio signals, is decoded with Dolby Pro Logic to create surround effects

ENHANCED SURROUND
Provides a greater sense of presence from Pro Logic source with monaural rear channel sound Produces a stereo like effect in the rear channels

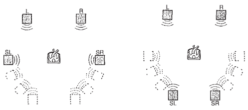
VIRTUAL REAR SHIFT
Uses 3D sound imaging to shift the sound of the rear speakers away from the actual speaker position The virtual speakers are reproduced as shown in the illustration below The shift position differs according to the setting of the rear speaker position

Side* **Rear***



VIRTUAL MULTI REAR
Uses 3D sound imaging to create an array of virtual rear speakers from a single pair of actual rear speakers The virtual speakers are reproduced as shown in the illustration below The position of the virtual rear speakers differs according to the setting of the rear speaker position

Side* **Rear***



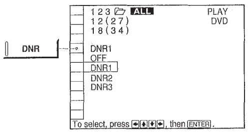
* See page 65 for details on how to set the rear speaker position

L: Front speaker (left)
R: Front speaker (right)
SL: Rear speaker (left)
SR: Rear speaker (right)
⁝ ⁝: Virtual speaker

Notes
- Some discs do not have rear sound In this case, you cannot get the 3D surround effect
- When you select an item, the sound cuts off for a moment
- When the playing signal does not contain the surround component, the effects may be difficult to hear even if you select "VES A" or "VES B "
- If you connect the front speakers only, "NORMAL SURROUND," "ENHANCED SURROUND," "VIRTUAL REAR SHIFT" and "VIRTUAL MULTI REAR" cannot be selected
- Set the front speakers to form an equilateral triangle including the listening position, or the effects may be difficult to hear even if you select "VES A" or "VES B "
- In case that the player outputs the signal from DIGITAL OUT (OPTICAL, COAXIAL), the surround effect will be heard only when you set "DOLBY DIGITAL" to "D-PCM" in "AUDIO SETUP."
- When you play sound tracks with 96 kHz sampling frequency, be sure to select "OFF," or the output signals will be converted to 48 kHz (sampling frequency) (Except when the player outputs the audio signal from DIGITAL OUT (OPTICAL, COAXIAL))
- When you connect a center speaker and a subwoofer, you can also hear the sound from the center speaker and the subwoofer When you select "VES A" or "VES B," the player does not output the sound from the center speaker
- When you select "VES A" or "VES B," set the surround settings of the connected units such as the amplifier to OFF.

Reducing the Picture Noise (DNR: Digital Video Noise Reduction) (DVD) (VIDEO CD)

You can make the picture clearer by reducing the picture noise of the background
Select "DNR" after pressing DISPLAY twice
When you select "DNR1," "DNR2," or "DNR3," the indicator of the "DNR" lights in green

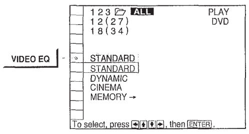


■DNR
As the value increases, the picture noise will be reduced However, afterimages may increase
- OFF: turns off the DNR function
- DNR1
- DNR2
- DNR3

Notes
- Depending on the disc, the effect may be difficult to tell
- If the afterimages appear on the TV screen, set the noise reduction function to off on your TV. Then set "DNR" to "OFF" on the Control Menu display.

Adjustments for Playback Picture (VIDEO EQ: Video Equalizer) (DVD) (VIDEO CD)

You can adjust the video output of the DVD or VIDEO CD from the player, not from the TV, to obtain the picture quality you want Choose one of the video modes whichever best suits the program you are watching.
When you select "MEMORY➜" in a menu item, adjust the value
Select "VIDEO EQ" after pressing DISPLAY twice

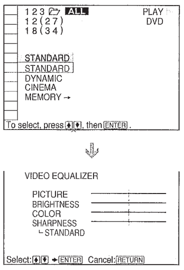


■VIDEO EQ
Selects the setting of video control
- STANDARD: displays a standard picture
- DYNAMIC: emphasizes the black level and so produces a bolder dynamic picture
- CINEMA: displays the picture with soft focus
- MEMORY➜: adjusts the picture items

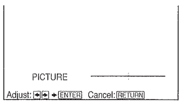
To adjust the picture items

You can adjust the following picture items individually.
- PICTURE
- BRIGHTNESS
- COLOR
- SHARPNESS

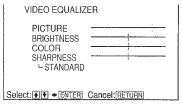
1 Select "MEMORY➜" in "VIDEO EQ."
The video control display appears



2 Select the picture item you want to adjust using ↑/↓, then press ENTER.
The adjustment bar of the selected item appears
To cancel adjusting the picture halfway, press ↶RETURN



3 Adjust the selected picture item using ←/→, then press ENTER.
The setting is stored in memory.



4 To adjust other items, repeat Steps 2 and 3.

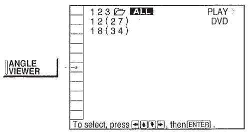
To exit the video control display
Press ↶RETURN

To reset the picture items
Select "STANDARD" in "MEMORY➜ "

Note
Only one setting of the picture items you adjusted in "MEMORY➜" can be stored When you adjust the items, new setting erases the setting adjusted before

Displaying Different Angles Simultaneously DVD

With DVDs on which various angles (multi-angles) for a scene are recorded, you can display all the angles recorded on the disc on the same screen, and start playback in continuous mode at the chosen angle directly. The angles are displayed on a screen divided in 9 sections. Select "ANGLE VIEWER" after pressing DISPLAY twice. When you can select "ANGLE VIEWER," the indicator of the "ANGLE VIEWER" lights in green.



To select the one angle
Select the angle using ←/↑/↓/→, then press ENTER. The selected angle only is displayed.

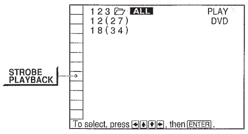
To cancel displaying multi-angles
Press RETURN.

You can check the number on the front panel display
The number of the angle you select is displayed on the front panel display.

Notes
- Depending on the DVD, you may not be able to change the angles even if multi-angles are recorded on the DVD.
- When a scene for which various angles (multi-angles) are not recorded comes while displaying different angles simultaneously, the player returns to the normal play.

Dividing a Track into 9 Sections (Strobe Play) DVD VIDEO CD

You can display 9 consecutive sections of the disc on the screen. In this case, the sections show still images. Select "STROBE PLAYBACK" after pressing DISPLAY.



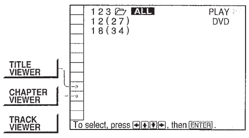
To cancel watching the strobe play
Press RETURN.

During pause mode, 9 still images around the pause position are displayed
It is convenient to see the still images around the specific portion.

Note
Depending on the disc, there are some scenes you may not be able to watch with the strobe play.

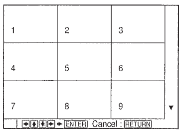
Scanning the Title, Chapter and Track DVD VIDEO CD

You can check the top picture of titles, chapters and tracks of the disc on a screen divided in 9 sections, and start playback from the chosen title, chapter or track. Select "TITLE VIEWER"(DVD only), "CHAPTER VIEWER"(DVD only) or "TRACK VIEWER"(VIDEO CD only) after pressing DISPLAY twice.



To start playback from the selected picture
Select the picture using ←/↑/↓/→, then press ENTER. The playback starts from the selected picture.

When there are over 9 titles or chapters
▼ appears at the right bottom of the screen. Select the right bottom scene (the position of 9) and use ↓ to display next titles, tracks or chapters. To return to the previous scene, select the left top scene (the position of 1) and press ↑.



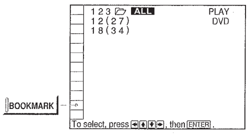
You can check the number on the front panel display
The number of the title, chapter and track you select is displayed on the front panel display.

To cancel scanning the title, chapter and track
Press RETURN.

Notes
- Depending on the disc, you may not be able to scan the title, chapter and track.
- You cannot scan the track on a VIDEO CD during PBC playback.

Setting and Selecting Favorite Scene (Bookmark) DVD VIDEO CD

You can have the player store specific portions of the disc in memory and play them immediately whenever you want without the need to search (Bookmark). You can set up to 9 bookmarks per disc. The bookmark of the disc is reset when the disc is removed from the player. Select "BOOKMARK" after pressing DISPLAY. When you play the disc which has bookmarks, the indicator of the "BOOKMARK" lights in green.



To start playback from the selected picture
Select the picture using ←/↑/↓/→, then press ENTER. The playback starts from the selected picture.

To cancel scanning the bookmark pictures
Press RETURN.

To reset the bookmark
Select the point on which you want to reset the bookmark using ←/↑/↓/→, then press CLEAR.

To reset the all bookmarks of the player
Select "BOOKMARK RESET→" under the "CUSTOM SETUP" in the setup display. For details on resetting all the bookmark of the player, see page 60.

Setting the bookmark

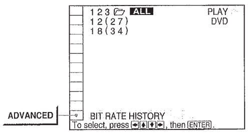
During playback, when you find the scene to be bookmarked, press BOOKMARK on the remote.
The bookmark is set.

Note
You may not set the bookmark depending on the discs.

Using Various Functions with the Control Menu

Checking the Play Information DVD

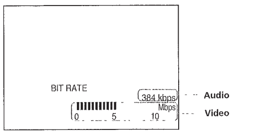
You can check the play information on the bit rate, bit rate history or the portion where the disc is played (layer). While playing a disc, the approximate bit rate of the playback picture is always displayed by Mbps (Mega bit per second) and the audio by kbps (kilo bit per second). Select "ADVANCED" after pressing DISPLAY twice.



■**ADVANCED**
When playing a DVD
- BIT RATE: displays bit rate.
- BIT RATE HISTORY: displays bit rate and bit rate history.
- LAYER: displays layer and the point picked up.
- DISPLAY OFF: turns off ADVANCED display.

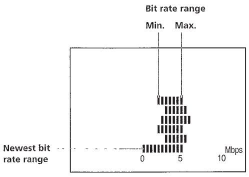
Displays of each item

BIT RATE



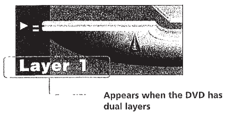
Bit rate refers to the amount of video/audio data per second in a disc. The higher the bit rate is, the larger the amount of data. When the bit rate level is high, there is a large amount of data. However, this does not always mean that you can get higher quality pictures or sounds.

BIT RATE HISTORY



Indicates the transition of bit rate of the playback picture for a period up to the present.

LAYER



Indicates the approximate point where the disc is playing. If it is a dual-layer DVD, the player indicates which layer is being read.
For details on the layers, see page 76 (DVD).

Using Various Functions with the Control Menu

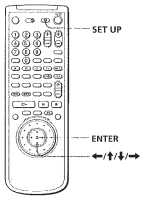
Settings and Adjustments

This chapter describes how to set and how to adjust using the on-screen SET UP menu. Most settings and adjustments are required to be set when you first use the player.
This chapter also describes how to set the remote for controlling the TV, the AV receiver (amplifier) or the CD changer.

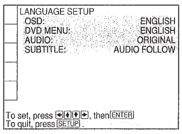
Using the Setup Display DVD VIDEO CD CD

Using the setup display, you can do the initial setup, adjusting the picture and sound quality, setting the various outputs, etc. You can also set a language for the subtitles and the setup display, limit playback by children, etc.
For details on each setup display item, see pages 58 to 66.

Note
You can display the setup display only when the player is in stop mode.



1 Press SET UP to display the setup display on the TV screen.



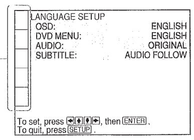
Settings and Adjustments

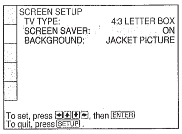
Using the Setup Display

2 Select the main item you want using ↑/↓, and then press ENTER.

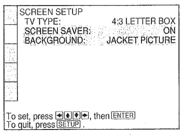
The selected main item is highlighted

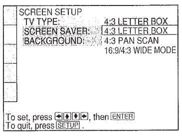
Main item



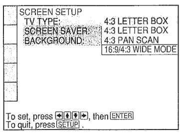


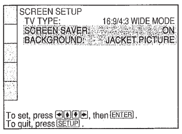
3 Select the item you want using ↑/↓, then press → or ENTER.





4 Select the setting you want using ←/↑/↓/→, then press ENTER.





To cancel using the setup display

Press SET UP on the remote

Note

Some setup display items require operations other than selecting the setting For details on these items, see the relevant pages

Setup Display Item List

Default settings are underlined

LANGUAGE SETUP (page 58)
- OSD — <u>ENGLISH</u> / FRENCH / SPANISH
- DVD MENU — <u>ENGLISH</u> / FRENCH / SPANISH / PORTUGUESE / GERMAN / ITALIAN / DUTCH / CHINESE / JAPANESE / DANISH / SWEDISH / FINNISH / NORWEGIAN / RUSSIAN / OTHERS →
- AUDIO — <u>ORIGINAL</u> / (same as DVD MENU)
- SUBTITLE — <u>AUDIO FOLLOW</u> / (same as DVD MENU)

SCREEN SETUP (page 59)
- TV TYPE — <u>4:3 LETTER BOX</u> / 4:3 PAN SCAN / 16:9/4:3 WIDE MODE
- SCREEN SAVER — <u>ON</u> / OFF
- BACKGROUND — <u>JACKET PICTURE</u> / PICTURE MEMORY / GRAPHICS / BLUE / BLACK

CUSTOM SETUP (page 60)
- AUTO PLAY — <u>OFF</u> / TIMER / DEMO1 / DEMO2
- DIMMER — <u>BRIGHT</u> / DARK / OFF
- PAUSE MODE — <u>AUTO</u> / FRAME
- BOOKMARK RESET →
- PARENTAL CONTROL →
- PLAYBACK MEMORY — <u>ON</u> / OFF

AUDIO SETUP (page 63)
- AUDIO ATT — <u>OFF</u> / ON
- AUDIO FILTER — <u>SHARP</u> / SLOW
- AUDIO DRC — <u>STANDARD</u> / TV MODE / WIDE RANGE
- TRACK SELECTION — <u>OFF</u> / AUTO
- DOWNMIX — <u>DOLBY SURROUND</u> / NORMAL
- DIGITAL OUT — <u>ON</u> (DOLBY DIGITAL / DTS) / OFF

SPEAKER SETUP (page 65)
- SIZE — FRONT / CENTER / REAR / SUBWOOFER
- DISTANCE — FRONT / CENTER / REAR
- BALANCE — FRONT / REAR
- LEVEL — CENTER / REAR / SUBWOOFER
- TEST TONE — <u>OFF</u> / ON

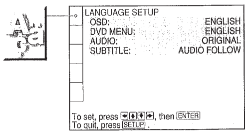
Setting the Language for Display and Sound (LANGUAGE SETUP) DVD VIDEO CD CD

Select "LANGUAGE SETUP" after pressing SET UP. "LANGUAGE SETUP" allows you to set various languages for on-screen display or sound

Default settings are underlined

Note

When you select a language that is not recorded on the DVD, one of the recorded languages is automatically selected except for the "OSD "



■OSD (On-Screen Display)

Switches the language for the on-screen display.
- <u>ENGLISH</u>
- FRENCH
- SPANISH

■DVD MENU

Switches the language for the DVD menu
- <u>ENGLISH</u>
- FRENCH
- SPANISH
- PORTUGUESE
- GERMAN
- ITALIAN
- DUTCH
- CHINESE
- JAPANESE
- DANISH
- SWEDISH
- FINNISH
- NORWEGIAN
- RUSSIAN
- OTHERS→

  When you select "OTHERS→," select and enter the language code from the list using the number buttons (page 78)
  After you have once selected, the language code (4 digits) is displayed

■AUDIO

Switches the language for the sounds
- <u>ORIGINAL</u>: the language given priority in the disc
- ENGLISH
- FRENCH
- SPANISH
- PORTUGUESE
- GERMAN
- ITALIAN
- DUTCH
- CHINESE
- JAPANESE
- DANISH
- SWEDISH
- FINNISH
- NORWEGIAN
- RUSSIAN
- OTHERS→

  When you select "OTHERS→," select and enter the language code from the list using the number buttons (page 78)
  After you have once selected, the language code (4 digits) is displayed

■SUBTITLE

Switches the language for the subtitles
- <u>AUDIO FOLLOW*</u>
- ENGLISH
- FRENCH
- SPANISH
- PORTUGUESE
- GERMAN
- ITALIAN
- DUTCH
- CHINESE
- JAPANESE
- DANISH
- SWEDISH
- FINNISH
- NORWEGIAN
- RUSSIAN
- OTHERS→

  When you select "OTHERS→," select and enter the language code from the list using the number buttons (page 78)
  After you have once selected, the language code (4 digits) is displayed

* When you select "AUDIO FOLLOW," the language for the subtitles changes according to the language for the setting you selected in "AUDIO "

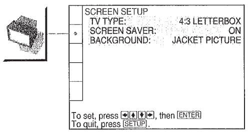
Note

The player gives priority to the settings of "SUBTITLE" and "AUDIO" in the Control Menu display when "PLAYBACK MEMORY" is set to "ON " The settings of "SUBTITLE" and "AUDIO" selected in the setup display may not appear in this case For details on the Playback Memory function, see page 60

Settings for Display (SCREEN SETUP) DVD VIDEO CD CD

Select "SCREEN SETUP" after pressing SET UP. "SCREEN SETUP" allows you to set the display according to the playback conditions

Default settings are underlined

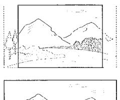


■TV TYPE

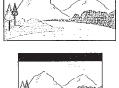
Selects the aspect ratio of the TV to be connected
- <u>4:3 LETTER BOX</u>: when you connect a normal TV to the player Displays a wide picture with bands displayed on the upper and lower portions of the screen
- 4:3 PAN SCAN: when you connect a normal TV to the player Displays the wide picture on the whole screen with a portion automatically cut off
- 16:9/4:3 WIDE MODE: when you connect a wide-screen TV to the player or when you connect a TV with WIDE MODE function to the player (displays a wide picture with bands displayed on the upper and lower portions of the screen)

4:3 LETTER BOX

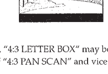
4:3 PAN SCAN



16:9



4:3 WIDE MODE



Note

Depending on the DVD, "4:3 LETTER BOX" may be selected automatically instead of "4:3 PAN SCAN" and vice versa

■SCREEN SAVER

Turns on and off the screen saver If you turn on the screen saver, the screen saver image appears when you leave the player or the remote in pause or stop mode for 15 minutes or when you play back a CD for more than 15 minutes The screen saver is useful to prevent your display from becoming damaged
- <u>ON</u>: turns on the screen saver
- OFF: turns off the screen saver

■BACKGROUND

Selects the background color or picture of the TV screen in stop mode or while playing a CD
- <u>JACKET PICTURE</u>: The jacket picture appears in the background, but only when the jacket picture is already recorded on the disc
- PICTURE MEMORY: Your favorite picture appears in the background when you have the player store in memory your favorite scene recorded on the disc for the background picture For the way of storing in memory, see "Storing the picture in memory."
- GRAPHICS: The graphic picture stored in memory in the player beforehand appears in the background
- BLUE: The background color is blue
- BLACK: The background color is black

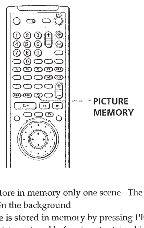
Note

If a disc which does not contain the jacket picture is played while "BACKGROUND" is set to "JACKET PICTURE," the graphic picture stored in the player will automatically appear in the background

Storing the picture in memory

During playback, when you find the scene to be stored in memory, press PICTURE MEMORY on the remote.

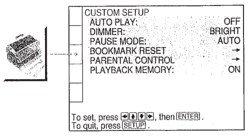
The picture is stored in memory.



Notes
- The player can store in memory only one scene The stored picture appears in the background
- When the picture is stored in memory by pressing PICTURE MEMORY, the picture stored before is not retained in memory

Custom Settings (CUSTOM SETUP) DVD VIDEO CD CD

Select "CUSTOM SETUP" after pressing SET UP.
"CUSTOM SETUP" allows you to set the playback conditions
Default settings are underlined



■AUTO PLAY
Selects the setting of Auto Play when you connect the AC power cord to the AC outlet.
- OFF: does not use "TIMER," "DEMO1" or "DEMO2" to start playing
- TIMER: starts playing a disc automatically when you connect the AC power cord to the AC outlet By connecting a timer (not supplied), you can start playing at any time you want
- DEMO1: starts playing the demonstration 1 automatically.
- DEMO2: starts playing the demonstration 2 automatically.

■DIMMER
Adjusts the lighting of the front panel display.
- BRIGHT: makes the front panel display bright
- DARK: makes the front panel display dark
- OFF: turns off the lighting of the front panel display.

■PAUSE MODE (DVD only)
Selects the picture in pause mode
- AUTO: A picture including subjects that move dynamically is output with no jitter Normally select this position
- FRAME: A picture including subjects that do not move dynamically is output with high resolution

■BOOKMARK RESET➡
Select "BOOKMARK RESET" The BOOKMARK reset display appears And then press ENTER to reset all bookmarks

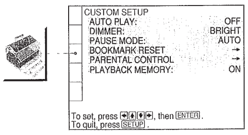
■PARENTAL CONTROL➡
Sets a password and playback limitation level when you play DVDs with playback limitation for children
For details, see "Limiting Playback by Children (Parental Control)"

■PLAYBACK MEMORY
You can have the player store the settings of SUBTITLE and VIDEO EQ, etc , of each disc The Playback Memory is reset when the disc is removed from the player
Set the Playback Memory function on or off
- ON: stores the settings in memory when you eject the disc
- OFF: does not store the settings in memory.

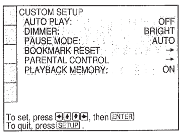
Following settings are stored in memory with the Playback Memory function
- AUDIO (page 38)
- SUBTITLE (page 40)
- ANGLE (page 40)
- VIRTUAL 3D SURROUND (page 48)
- DNR (page 50)
- VIDEO EQ (page 50)

Limiting Playback by Children (Parental Control) DVD

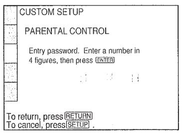
Select "CUSTOM SETUP" after pressing SET UP.
Playing some DVDs can be limited depending on the age of users The "Parental Control" function allows you to set a playback limitation level



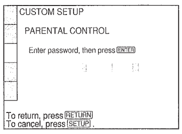
1 Select "PARENTAL CONTROL" using ↑/↓, then press ENTER.



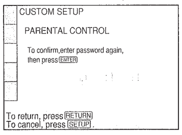
■When you have not entered a password yet
The display for entering a password appears



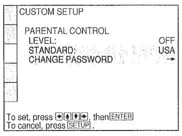
■When you have already entered a password
The display for confirming the password appears Skip Step 2



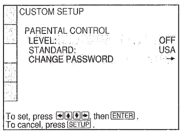
2 Enter a password in 4 digits using the number buttons, then press ENTER.
The digits change to asterisks (⚹), and the display for confirming the password appears



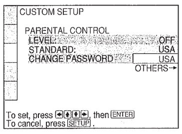
3 To confirm your password, enter it using the number buttons, then press ENTER.
The display for setting the playback limitation level and changing the password appears



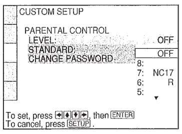
4 Select "STANDARD" using ↑/↓, then press ➡.



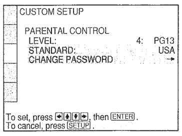
5 Select an area as the standard for playback limitation level using ↑/↓, then press ➡.
When you select "OTHERS➡," select and enter the standard code in the table below using number buttons



6 Select "LEVEL" using ↑/↓, then press ➡.



7 Select the level you want using ↑/↓, then press ENTER.



The lower the value is, the more strict the limitation

To return to the normal screen
Press SET UP.

To turn off the Parental Control function and play the DVD after entering your password
Set "LEVEL" to "OFF" in Step 7, then press ▷

To change the password
1 After Step 3, select "CHANGE PASSWORD" using ↑/↓, then press ➡ or ENTER
The display for changing the password appears
2 Follow Steps 2 and 3 to enter a new password

You can turn off the Parental Control function just after inserting the DVD (Parental Control Temporarily Canceled)
When you set a playback limitation level and insert the DVD, the PARENTAL CONTROL display appears Enter the password to turn off the Parental Control function
When you stop playing the DVD, the level returns to the original level

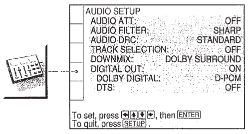
If you have forgot your password
Enter the 6 digits number "199703" in Step 2 to clear the current password To enter a new password, follow the procedure from Step 2 again

Notes
- When you play DVDs which do not have the Parental Control function, playback cannot be limited on this player
- When you do not set a password, you cannot change the settings for playback limitation
- Depending on the DVD, you may be asked to change the parental control level while playing the disc In this case, enter the password, then change the level
When you stop playing the DVD, the level returns to the original level

Standard	Code number
Austria	2046
Belgium	2057
Canada	2079
China	2092
Denmark	2115
Finland	2165
France	2174
Germany	2109
Hong Kong	2219
Indonesia	2238
Italy	2254
Japan	2276
Malaysia	2363
Netherlands	2376
Norway	2379
Philippines	2424
Russian	2489
Singapore	2501
Spain	2149
Sweden	2499
Switzerland	2086
Taiwan	2543
Thailand	2528
United Kingdom	2184

Settings for Sound (AUDIO SETUP)

Select "AUDIO SETUP" after pressing SET UP.
"AUDIO SETUP" allows you to set the sound according to the playback conditions
Default settings are underlined



■AUDIO ATT (attenuation)
Selects the setting of the output from the LINE OUT (AUDIO 1, 2) and 5 1CH OUTPUT connectors according to the audio equipment to be connected
- OFF: turns off the audio attenuation
- ON: reduces the audio output level so that no sound distortion occurs

Note
The setting does not affect the output from the DIGITAL OUT OPTICAL and COAXIAL connectors

■AUDIO FILTER
Selects the type of digital filter to reduce the noise of a frequency higher than 22 05kHz (fs 44 1kHz), 24kHz (fs 48kHz) or 48kHz (fs 96kHz)
- SHARP: makes the sound clear and provides smooth sound reproduction Normally set this position
- SLOW: makes the sound warm and deep

Note
Depending on the disc, the effect on the sound may be difficult to hear

■AUDIO DRC (Dynamic Range Control)
Makes the sound clear with the volume turned down at night, etc , when you play a DVD This affects the output from the DIGITAL OUT connectors only when "PCM" in "DIGITAL OUT" is set to "ON," and it affects the output from the LINE OUT (AUDIO 1,2), and 5 1CH OUTPUT connectors
- STANDARD: Normally select this position
- TV MODE: makes the low sound clear even if you turned the volume down, so it is good for playing at night It is especially recommended when you listen to the sound using the speakers of the TV.
- WIDE RANGE: It gives you the feeling of being at a live performance When you use high quality speakers, it is more effective

Notes
- When you play DVDs without the AUDIO DRC function, there may be no effect on the sound.
- When this item is set to "WIDE RANGE," the sound volume from other than the 5 1CH OUTPUT connectors may be less than usual
- "WIDE RANGE" cannot be selected when you have selected "NONE" in "SIZE" under "SPEAKER SETUP"

■TRACK SELECTION
Gives the sound track which contains the highest number of the channels priority when you play a DVD on which multiple audio formats are recorded. If multiple audio channels are recorded in PCM, DTS or Dolby Digital format, the higher-numbered channel audio recorded in PCM, DTS or Dolby Digital format is played
- OFF : No priority given
- AUTO : Priority given

Notes
- When the player stores the settings in memory with the Playback Memory function, the player may not give priority even if you select "AUTO "
- When you set this item to "AUTO," the language may change depending on the "AUDIO" settings in "LANGUAGE SETUP." The "TRACK SELECTION" setting has higher priority than that of "AUDIO" settings in "LANGUAGE SETUP" (page 52)
- If you set "DTS" in "AUDIO SETUP" to "OFF," the DTS sound track is not played even if you set this item to "AUTO" and the highest-numbered channel audio is recorded in DTS format
- If PCM, DTS and Dolby Digital sound tracks have the same number of the highest channels, the player selects PCM, DTS and Dolby Digital sound tracks, in this order
- Depending on the DVD, the audio with priority may be predetermined. In this case, you cannot give priority to the DTS or Dolby Digital format by selecting "AUTO "

■DOWNMIX*
Switches the mixing down methods when you play a DVD on which the sound in Dolby Digital format is recorded
- DOLBY SURROUND: when the player is connected to an audio component that conforms to Dolby Surround (Pro Logic)
- NORMAL: when the player is connected to a normal audio component

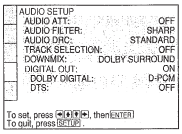
* The setting affects the following connectors:
–LINE OUT (AUDIO 1, 2) connectors
–DIGITAL OUT (OPTICAL, COAXIAL) connectors

■DIGITAL OUT
Selects output signals via the DIGITAL OUT OPTICAL and COAXIAL connectors
- ON: Normally select this position When you select "ON," set "DOLBY DIGITAL" and "DTS " For details on setting them, see "Setting for the Signal to the Digital Output."
- OFF: when the player does not output the sound signals via DIGITAL OUT OPTICAL and COAXIAL connectors, if you select this position, the influence of the digital circuit upon the analog one is minimum

Notes
- When you play the sound tracks with 96 kHz sampling frequency, the output signals from the DIGITAL OUT (OPTICAL, COAXIAL) are converted to 48 kHz (sampling frequency) When the signals are output from LINE OUT (AUDIO 1, 2) connector, sampling frequency stays at 96 kHz and the output signals are converting to analog signals.
- When you select "OFF," You cannot set "DOLBY DIGITAL" and "DTS "

Setting for the Signal to the Digital Output

When you select "ON," set "DOLBY DIGITAL" and "DTS."
Switches the methods of outputting audio signals when you connect a digital component such as a receiver (amplifier) having a digital connector, an audio component having a built-in DTS decoder, a DAT or MD via the DIGITAL OUT OPTICAL or COAXIAL connector using an optical or coaxial digital connecting cord For details on the connection, see page 11



■DOLBY DIGITAL
Selects output Dolby Digital signals via the DIGITAL OUT OPTICAL and COAXIAL connectors You cannot select this item when you set "DIGITAL OUT" to "OFF."
- D-PCM (Downmix PCM): when you play the Dolby Digital sound tracks, the output audio signals are mixed down to 2 channels With the settings of the item "DOWNMIX" in "AUDIO SETUP," you can select whether the signals conform to Dolby Surround (Pro Logic) or not.
- DOLBY DIGITAL: when the player is connected to an audio component with a built-in Dolby Digital decoder

Note
If the player is connected to an audio component lacking a built-in Dolby Digital decoder, do not set "DOLBY DIGITAL" in "AUDIO SETUP" to "DOLBY DIGITAL " Otherwise, when you play the Dolby Digital sound track, a loud noise or no sound will come out from the speakers, affecting your ears or causing the speakers to be damaged

■DTS
Selects output DTS signals via the DIGITAL OUT OPTICAL and COAXIAL connectors You cannot select this item when you set "DIGITAL OUT" to "OFF"
- OFF: when the player is connected to an audio component lacking a built-in DTS decoder
- ON: when the player is connected to an audio component having a built-in DTS decoder

Note
Select the setting correctly. Otherwise, no sound or strange sound will come out from the speakers, affecting your ears or causing the speakers to be damaged

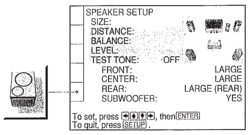
- **Do not play the DTS sound tracks without connecting the player to an audio component having a built-in DTS decoder. You cannot hear the DTS sound unless you connect the player to an audio component having a built-in DTS decoder.**
- **When you play the DTS sound track on a CD, a loud noise may come out from the LINE OUT (AUDIO 1, 2), 5.1CH OUTPUT and PHONES connectors, affecting your ears or causing the speakers or headphones to be damaged.**
- **When you play the DTS sound track on a DVD, no sounds will come out from the LINE OUT (AUDIO 1, 2), 5.1CH OUTPUT and PHONES connectors.**

Notes on playing the DTS sound tracks on a CD
- Do not play the DTS sound tracks without connecting the player to an audio component having a built-in DTS decoder The player output the DTS signal via the DIGITAL OUT OPTICAL and COAXIAL connectors even if "DTS" in "AUDIO SETUP" is set to "OFF" in the setup display, affecting your ears or causing the speakers to be damaged
- The DTS indicator on the front panel does not light up even if the player outputs DTS signal via the DIGITAL OUT OPTICAL and COAXIAL connectors.
- Set the sounds to "STEREO" when you play the DTS sound tracks on a CD (See "Changing the Sounds" on page 38) If you set the sounds to "1/L" or "2/R", no sounds will come out from the DIGITAL OUT OPTICAL and COAXIAL connectors

Notes on playing the DTS sound tracks on a DVD
- No sounds will come out from the LINE OUT (AUDIO 1, 2) and PHONES connectors
- If the player is connected to an audio component lacking a built-in DTS decoder, do not set "DTS" in "DIGITAL OUT" to "ON" in the setup display. Otherwise, when you play the DTS sound track, a loud noise will come out from the speakers, affecting your ears or causing the speakers to be damaged
- When you set "DTS" in "AUDIO SETUP" to "OFF," no sound will come out from the DIGITAL OUT OPTICAL and COAXIAL connectors even if you play DTS sound tracks on DVDs

Speaker Set Up

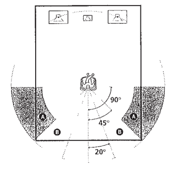
Select "SPEAKER SETUP" after pressing SET UP.
To obtain the best possible surround sound, first specify the size of the speakers you have connected and their distance from your listening position, then set the balance and level Use the test tone to adjust the speaker volumes to the same level
For the speaker hook ups, see pages 12 to 13



■SIZE
Selects the size of the speakers to be connected
- FRONT
  — LARGE: Normally select this
  — SMALL: When the sound cracks or the effects of the surround is difficult to hear, select this This activates the Dolby Digital bass redirection circuitry and outputs the bass frequencies of the speaker from subwoofers
- CENTER
  — NONE: If you will not connect a center speaker, select this
  — LARGE: Normally select this
  — SMALL: When the sound cracks, select this This activates the Dolby Digital bass redirection circuitry and outputs the bass frequencies of the speaker from some other speakers .
- REAR
  — NONE: If you will not connect a rear speaker, select this
  — LARGE (REAR*/SIDE*): Normally select this
  — SMALL (REAR*/SIDE*): When the sound cracks or the effects of the surround is difficult to hear, select this This activates the Dolby Digital bass redirection circuitry and outputs the bass frequencies of the speaker from some other speakers
- SUBWOOFER
  — NONE: If you do not connect a subwoofer, select this This activates the Dolby Digital bass redirection circuitry and outputs the LFE (low frequency effects) signals from the front speakers
  — YES: If you connect a subwoofer, select this to output the LFE (low frequency effects) channel from the subwoofer

* Rear speaker position (REAR/SIDE)
These items let you specify the location of your rear speakers for proper implementation of "VIRTUAL REAR SHIFT" and "VIRTUAL MULTI REAR" in the Control Menu display Refer to the illustration below
- Set to "SIDE" if the location of your rear speakers corresponds to section A.
- Set to "REAR" if the location of your rear speakers correcponds to section B.

This setting effects only the "VIRTUAL REAR SHIFT" and "VIRTUAL MULTI REAR" mode



Notes
- When you select an item, the sound cuts off for a moment
- The cut off frequency for the subwoofer is fixed at 100Hz
- Set the subwoofer's cut off frequency as high as possible
- Depending on the settings of other speakers, the subwoofer may output excessive sound.
- If your speakers are too small to reproduce low bass frequencies, set all speaker settings to "SMALL" and utilize a subwoofer for low frequency sound

■DISTANCE
You can vary the distance of each speaker as follows
Default adjustments are in the parentheses
- FRONT (12ft/3 6m)
  Front speaker distance can be set in 1 foot/0 3 meter steps from 4 to 50 feet/1 2 to 15 2 meters
- CENTER (12ft/3 6m)
  Center speaker distance can be set in 1 foot/0 3 meter steps from a distance 2 feet/0 6 meter farther to the front speaker to a distance 5 feet/1 6 meters closer to your listening position
- REAR (10ft/3 0m)
  Rear speaker distance can be set in 1 foot/0 3 meter steps from a distance equal to the front speaker distance to a distance 16 feet/5 meters closer to your listening position

Notes
- When you set the distance, the sound cuts off for a moment
- If each of the front or rear speakers are not placed an equal distance from your listening position, set the distance of the closest speaker
- Do not place the rear speaker farther away from your listening position than the front speakers

■BALANCE
You can vary the balance of each speaker as follows
Default adjustments are in the parentheses
- FRONT (0dB)
  Adjust the balance between the front left and right speakers (-6dB [L] to +6dB [R], 0 5dB steps)
- REAR (0dB)
  Adjust the balance between the rear left and right speakers (-6dB [L] to +6dB [R], 0 5dB steps)

Note
When you select "VES A" or "VES B" in "VIRTUAL 3D SURROUND" in the Control Menu display, you cannot adjust the level or the balance of the speakers except for the front speakers

■LEVEL
You can vary the level of each speaker as follows The front speaker level becomes the criterion for adjusting
Default adjustments are in the parentheses
- CENTER (0dB)
  Adjust the level of the center speaker (-6dB to +6dB, 0 5dB steps)
- REAR (0dB)
  Adjust the level of the rear speakers (-6dB to +6dB, 0 5dB steps).
- SUBWOOFER (0dB)
  Adjust the level of the subwoofer (-10dB to +6dB, 0 5dB steps)

■TEST TONE
You can hear the test tone from each speaker in sequence
- OFF: The test tone is not emitted from speakers
- ON: During adjustment of "BALANCE" or "LEVEL," the test tone is emitted from both speakers simultaneously

Note
While you are playing a disc, you cannot hear the test tone Execute the test tone after you stop playback

To adjust the volume of all the speakers at one time
Use the receiver's (amplifier's) volume control

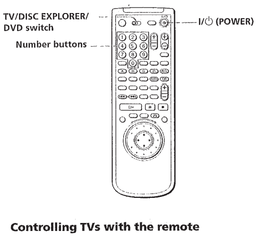
To return to the default setting
Select the item, then press CLEAR

Adjusting the speaker volume

1. **While you stop playback, select "SPEAKER SETUP" after pressing SET UP.**
2. **Select "TEST TONE" and set "TEST TONE" to "ON."**
   You will hear the test tone from each speaker in sequence
3. **From your listening position, select "BALANCE" or "LEVEL" and adjust the value of "BALANCE" and "LEVEL" using ↑/↓.**
   During this adjustment, the test tone is emitted from both speakers simultaneously.
4. **Select "TEST TONE" and set "TEST TONE" to "OFF" to turn off the test tone.**

Controlling the TV or the AV Receiver (Amplifier) with the Supplied Remote

If you adjust the remote signal, you can control your TV with the supplied remote Default setting is to control Sony TVs with the mark
When you connect the player to a Sony AV receiver (amplifier), you can also set the input of the receiver (amplifier) to this player with the supplied remote



Controlling TVs with the remote

1. **Slide the TV/DISC EXPLORER/DVD switch to TV.**
2. **Hold down I/⏻ (POWER), and enter your TV's manufacturer's code (see the table on the next page) using the number buttons. Then release I/⏻ (POWER).**

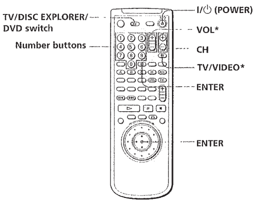
Code numbers of controllable TVs
If more than one code number is listed, try entering them one at a time until you find the one that works with your TV.

Notes
- If you enter a new code number, the code number previously entered will be erased
- When you replace the batteries of the remote commander, the code number may reset to 01 (Sony) Reset the appropriate code number

Controlling the TV or the AV Receiver (Amplifier) with the Supplied Remote

Manufacturer	Code number	Manufacturer	Code number
Sony (default)	01	Panasonic	06,19
Akai	04	Philco	03,04
AOC	04	Philips	08
Centurion	12	Pioneer	16
Coronado	03	Portland	03
Curis-Mathes	12	Quasar	06,18
Daytron	12	Radio Shack	05,14
Emerson	03,04,14	RCA	04,10
Fisher	11	Sampo	12
General Electric	06,10	Sanyo	11
Gold Star	03,04,17	Scott	12
Hitachi	02,03	Sears	07,10,11
J.C.Penny	04,12	Sharp	03,05,18
JVC	09	Sylvania	08,12
KMC	03	Teknika	03,08,14
Magnavox	03,08,12	Toshiba	07
Marantz	04,13	Wards	03,04,12
MGA/Mitsubishi	04,12,13,17	Yorx	12
NEC	04,12	Zenith	15

When you set the TV/DISC EXPLORER/DVD switch to TV, you can control your TV using the keys below



By pressing	You can
I/⏻ (POWER)	Turn the TV on or off
TV/VIDEO*	Select the input source for the TV
VOL*	Adjust the volume of the TV
CH	Change the channel of the TV
Number buttons and ENTER	Select the channel of the TV

* You can control the TV regardless of the position of the TV/DISC EXPLORER/DVD switch

Note
Depending on the TV, you may not be able to control your TV or to use some of the buttons above

Controlling an AV receiver (amplifier) with the remote

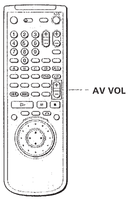
1 **Slide the TV/DISC EXPLORER/DVD switch to DVD.**

2 **Hold down I/⏻ (POWER), and enter your AV receiver's manufacturer's code (see the table below) using the number buttons. Then release I/⏻ (POWER).**

Manufacturer	Code number
Sony	91(default), 88, 89
Denon	84, 85, 86
Kenwood	92, 93
Onkyo	81, 82, 83
Pioneer	99
Sunsui	87
Technics	97, 98
Yamaha	94, 95, 96

Code numbers of controllable receivers (amplifiers)
If more than one code number is listed, try entering them one at a time until you find the one that works with your receiver (amplifier)

You can also change the sound volume of the AV receiver (amplifier) using AV VOL

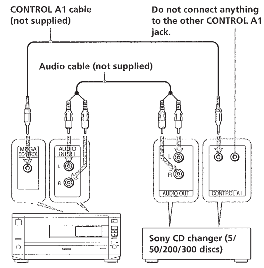


Notes
- Depending on the AV receiver (amplifier), you may not be able to control your AV receiver (amplifier)
- You can control the AV receiver (amplifier) regardless of the position of the TV/DISC EXPLORER/DVD switch

Controlling the CD Changer (Mega Control)

You can control a Sony CD changer of 5/50/200/300 discs connected to the MEGA CONTROL jack of the player

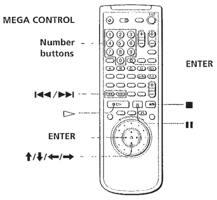
Connecting the CD changer

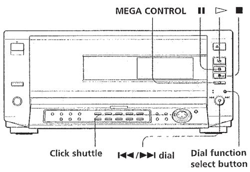


Settings and Adjustments

Controlling the CD changer

The controls indicated below are effective while the MEGA CONTROL button is lit





1 **Set the command mode selector of the CD changer to "CD 3."**

2 **Turn on the player and the CD changer.**

3 **Press MEGA CONTROL.**
The MEGA CONTROL button of the front panel lights up and the display shows the current disc number of the CD changer

4 **Select the play mode you want on the CD changer.**

5 **Press ▷ on the player to start playing.**
The playback starts and the display shows the current disc and track numbers and the playing time of the track
While the MEGA CONTROL button of the front panel is lit, you can control the CD changer with the controls on the player as follows:

To	Operation
Select a disc in continuous play mode	Press the number button on the remote and ENTER, or ↑/↓ and ENTER, or turn the click shuttle of the player slowly. Press the dial function select button to turn the DISC CHANGE indicator on, then turn the I◀◀/▶▶I dial and press it.
Skip by 10 discs in continuous play mode	Press ←/→, then press ENTER
Stop	Press ■.
Pause	Press II.
Resume play after pause	Press II or ▷.
Go to the next track	On the player: Press the dial function select button to turn the DIRECT SEARCH indicator on, then turn the I◀◀/▶▶I dial clockwise On the remote: Press ▶▶I
Go back to the preceding track	On the player: Press the dial function select button to turn the DIRECT SEARCH indicator on, then turn the I◀◀/▶▶I dial counterclockwise On the remote: Press I◀◀

To control the player again
Press MEGA CONTROL on the player or the remote
The MEGA CONTROL button goes off and you can control the player

Notes
- Connect only a Sony CD changer of 5/50/200/300 discs to the MEGA CONTROL jack
- You cannot locate a particular point in a track of the CD changer using the controls on the player
- Depending on the CD changer, some controls on the player may not operate the CD changer as they do the player.
- You cannot control the player when the MEGA CONTROL button on the front is lit
- The player will not enter Resume Play after the MEGA CONTROL button on the front has been turned on and off.
- You cannot control the CD changer right after turning on the player or connecting the CD changer Wait a few seconds until the player recognizes the CDs

Additional Information

Troubleshooting

If you experience any of the following difficulties while using the player, use this troubleshooting guide to help you remedy the problem Should any problem persist, consult your nearest Sony dealer

Power

The power is not turned on.
→ If the indicator above the I/⏻ (POWER) button is not lit, check that the AC power cord is connected securely.

Picture

There is no picture.
→ Check that the player is connected securely.
→ The video connecting cord is damaged Replace it with a new one
→ Make sure you connect the player to the video input connector on the TV (page 8)
→ Make sure you turn on the TV.
→ Make sure you select the video input on the TV so that you can view the pictures from the player.

The picture noise appears.
→ Clean the disc
→ If video from your DVD player has to go through your VCR to get to your TV, the copy-protection applied to some DVD programs could affect picture quality. If you still experience problems after checking your connections, please try connecting your DVD player directly to your TV's S video input, if your TV is equipped with this input (page 8)
→ In the Control Menu display, set "VIDEO EQ" to "STANDARD" (page 50)

The aspect ratio of the screen cannot be changed even though you set "TV TYPE" in "SCREEN SETUP" in the setup display when you play a wide picture.
→ The aspect ratio is fixed on your DVD
→ If you connect the player with the S video cord, connect directly to the TV. Otherwise, you may not change the aspect ratio
→ Depending on the TV, you may not change the aspect ratio

Additional Information

Sound

There is no sound.

➡ Check that the player is connected securely.
➡ The audio connecting cord is damaged Replace it with a new one
➡ Make sure you connect the player to the audio input connectors on the receiver (amplifier) (page 10)
➡ Make sure you turn on the TV and the receiver (amplifier)
➡ Make sure you select the appropriate position on the receiver (amplifier) so that you can listen to the sound from the player
➡ The player is in pause mode or in Slow-motion Play mode Press ▷ to return to normal play mode
➡ Fast forward (FF1 or FF2) or fast reverse (FR1 or FR2) is performed Press ▷ to return to normal play mode
➡ Check the speaker connections and settings (pages 12, 65) Refer to the operating manual of your receiver (amplifier)
➡ When you play the Dolby Digital sound tracks and attempt to output from the DIGITAL OUT connectors, set "DIGITAL OUT" to "ON" in the setup display. Otherwise no sound will come out from the DIGITAL OUT connectors (page 64)
➡ When you play the DTS sound tracks, no sound will come out from the LINE OUT, 5 1CH OUTPUT and PHONES connectors (page 65)

Sound noise is heard.

➡ Clean the disc.
➡ When you play the DTS sound tracks on a CD, sound noise will come out from the LINE OUT, 5 1CH OUTPUT and PHONES connectors (page 65)

Sound distortion occurs.

➡ In the setup display, set "AUDIO ATT" in "AUDIO SETUP" to "ON" (page 63)

The sound loses stereo effect when you play a VIDEO CD or a CD.

➡ Set "AUDIO" to "STEREO" in the Control Menu display (page 38)
➡ Make sure you connect the player appropriately (pages 8, 10, 12)

The surround effect is difficult to hear when you are playing a Dolby Digital sound track.

➡ Check the speaker connections and settings (pages 12, 65) Refer to the operating manual of your receiver (amplifier)
➡ Depending on the DVD, the output signal may not be the entire 5 1 channel but monaural or stereo even if the sound track is recorded in Dolby Digital format

The sound comes from the center speaker only.

➡ Depending on the disc, the sound may come from the center speaker only.
➡ Set "VIRTUAL 3D SURROUND" to "OFF," "VES A" or "VES B" in the Control Menu display (page 48)

Operation

The remote does not function.

➡ Remove any obstacles between the remote and the player
➡ Use the remote near the player
➡ Point the remote at the remote sensor ⊠ on the player
➡ Replace all the batteries in the remote with new ones if they are weak
➡ If you operate the player from the TV using the S-link connection, connect the S-link plug to the S-link connector of the TV (page 8)

The disc does not play.

➡ There is no disc inside ("Insert disc " appears on the TV screen) Insert a disc
➡ Insert the disc correctly with the playback side facing down on the disc tray.
➡ Clean the disc
➡ The player cannot play CD-ROMs, etc (page 5) Insert a DVD, a VIDEO CD, or CD
➡ Check the region code of the DVD (page 4)
➡ Moisture has condensed inside the player Remove the disc and leave the player turned on for about half an hour (page 6)
➡ The selected disc is not included in the current folder

The player does not play from the beginning when playing a disc.

➡ Repeat Play, Shuffle Play or Program Play has been selected Press CLEAR (pages 42 to 45)
➡ Resume Play has been selected Press ■ on the front panel or on the remote before you start playing (page 20)
➡ A title menu or a DVD menu automatically appears on the TV screen when you play your DVD, or a setup display automatically appears on the TV screen when you play your VIDEO CD with PBC functions

The player starts playing the DVD automatically.

➡ The DVD features the auto playback function

Playback stops automatically.

➡ Depending on the disc, the auto pause signal is recorded While playing such a disc, the player stops playback at the signal

Stopping playback, Search, Slow-motion Play, Repeat Play, Shuffle Play or Program Play, etc., cannot be done.

➡ Depending on the disc, you may not do some of the operations above

Messages do not appear on the TV screen in the language you want.

➡ In the setup display, select the language for the on-screen display in "OSD" under "LANGUAGE SETUP" (page 58)

The language for the sound cannot be changed when you play a DVD.

➡ Multilingual sound is not recorded on the DVD
➡ Changing the language for the sound is prohibited on the DVD

The language for the subtitles cannot be changed when you play a DVD.

➡ Multilingual subtitles are not recorded on the DVD
➡ Changing the language for the subtitles is prohibited on the DVD

The subtitles cannot be turned off when you play a DVD.

➡ Depending on the DVD, you may not be able to turn the subtitles off

The angles cannot be changed when you play a DVD.

➡ Multi-angles are not recorded on the DVD
➡ Change the angles when "ANGLE" appears on the front panel display (page 40).
➡ Changing the angles is prohibited on the DVD

The player does not operate properly.

➡ Static electricity, etc , may affect the player's operation Disconnect the AC power cord once, then connect it again

Nothing is displayed on the front panel display.

➡ In the setup display, "DIMMER" in "CUSTOM SETUP" is set to "OFF" Set "DIMMER" to "BRIGHT" or "DARK" (page 60)

The sound does not come from the CD changer connected using the CONTROL A1 cable

➡ Turn on the player
➡ Press the MEGA CONTROL button on the front panel (page 70)

The disc tray does not open and "LOCKED" is displayed on the front panel display.

➡ Contact your Sony dealer or local authorized Sony service facility.

The numbers or letters of 5 characters are displayed on the front panel display.

➡ Self-diagnosis function was activated See the table on page 74 and treat the player appropriately.

Self-diagnosis function

When the self-diagnosis function works to prevent the player from malfunctioning, a five-character service number (combination of a letter and digits) flashes on the front panel display In this case, check the following table

First three characters	Cause and/or Corrective Action
C 13	• The disc is dirty ➡Clean the disc with a cleaning cloth (page 6)
C 31	• The disc is not inserted correctly ➡Open the disc tray and insert the disc correctly
E xx (xx is any number)	• To prevent the player from malfunctioning, the self-diagnosis function has worked ➡When you contact your Sony dealer or local authorized Sony service facility, give the 5-character service number. (example: E 61 10)

Glossary

Bit rate (page 54)
Value indicating the amount of video data compressed in a DVD per second The unit is Mbps (Mega bit per second) 1 Mbps indicates that the data per second is 1,000,000 bits The higher the bit rate is, the larger the amount of data. However, this does not always mean that you can get higher quality pictures

Chapter (page 5)
Sections of a picture or a music piece on a DVD that are smaller than titles A title is composed of several chapters Each chapter is assigned a chapter number enabling you to locate the chapter you want

Digital Cinema Sound (DCS) (page 48)
The general name of technology that Sony developed to enjoy the surround sound in a home To enjoy the surround sound of a movie theater in the comfort of your own home, it simulates the sound not in a concert hall as usual but in a movie editing studio This player adopts VES (Virtual Enhanced Surround) system from various DCS programs The VES system can create the sound image of virtual rear speakers from the sound of the front speakers (L, R) without using actual rear speakers

Dolby Digital (pages 12, 48)
Digital audio compression technology that the Dolby Laboratories Corporation developed This technology conforms to 5 1-channel surround sound The rear channel is stereo and there is discrete subwoofer channel in this format. Dolby Digital provides the same 5 1 discrete channels of high quality digital audio found in Dolby Digital cinema audio systems The good channel separation is realized because the all channel data is recorded discrete and processed in digital

Dolby Pro Logic (pages 48, 64)
Audio signal processing technology that Dolby Laboratories Corporation developed for surround sound When the input signal has the surround component, the Pro Logic process outputs the front, center and rear signals The rear channel is monaural

DTS (pages 5, 11, 65)
Digital audio compression technology that the Digital Theater Systems, Inc developed This technology conforms to 5 1-channel surround The rear channel is stereo and there is discrete subwoofer channel in this format DTS provides the same 5 1 discrete channels of high quality digital audio The good channel separation is realized because the all channel data is recorded discrete and processed in digital

DVD (page 4)
A disc that contains up to 8 hours of moving pictures even though its diameter is the same as a CD
The data capacity of a single-layer and single-sided DVD, at 4 7 GB (Giga Byte), is 7 times that of a CD
Furthermore, the data capacity of a dual-layer and single-sided DVD is 8 5 GB, a single-layer and double-sided DVD 9 4 GB, and a dual-layer and double-sided DVD 17 GB
The picture data uses the MPEG 2 format, one of the worldwide standards of digital compression technology. The picture data is compressed to about 1/40 of its original size. The DVD also uses the variable rate coding technology that changes the data to be allocated according to the status of the picture.
The audio data is recorded in Dolby Digital as well as in PCM, allowing you to enjoy more real audio presence
Furthermore, various advanced functions such as the multi-angle, multilingual, and Parental Control functions are provided with the DVD

Multi-angle function (page 40)
Various angles, or viewpoints of the video camera, for a scene are recorded on some DVDs

Multilingual function (pages 14, 40, 58)
Several languages for the sound or sub-titles in a picture are recorded on some DVDs

Parental Control (page 60)
A function of the DVD to limit playback of the disc by the age of the users according to the limitation level in each country. The limitation varies from disc to disc; when it is activated, playback is completely prohibited, violent scenes are skipped or replaced with other scenes and so on

Playback Control (PBC) (page 22)
Signals encoded on VIDEO CDs (Version 2 0) to control playback
By using menu screens recorded on VIDEO CDs with PBC functions, you can enjoy playing simple interactive programs, programs with search functions, and so on

Title (page 5)
The longest sections of a picture or a music piece on a DVD; a movie, etc., for a picture piece on video software; or an album, etc , for a music piece on an audio software Each title is assigned a title number enabling you to locate the title you want

Track (page 5)
Sections of a picture or a music piece on a CD or VIDEO CD Each track is assigned a track number enabling you to locate the track you want

VIDEO CD (page 4)
A compact disc that contains moving pictures
The picture data uses the MPEG 1 format, one of the worldwide standards of digital compression technology. The picture data is compressed to about 1/140 of its original size Consequently, a 12 cm VIDEO CD can contain up to 74 minutes of moving pictures
VIDEO CDs also contain compact audio data Sounds outside the range of human hearing are compressed while the sounds we can hear are not compressed VIDEO CDs can hold 6 times the audio information of conventional audio CDs
There are 2 versions of VIDEO CDs
- Version 1 1: You can play only moving pictures and sounds
- Version 2 0: You can play high-resolution still pictures and enjoy PBC functions

This player conforms to both versions

Language Code List

For details, see pages 40 and 58

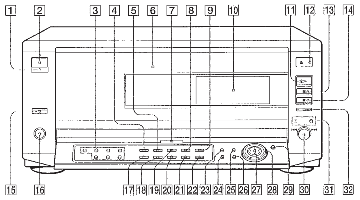
The language spellings conform to the ISO 639: 1988 (E/F) standard.

Code	Language	Code	Language	Code	Language	Code	Language
1027	Afar	1186	Scots Gaelic	1350	Malayalam	1513	Siswati
1028	Abkhazian	1194	Galician	1352	Mongolian	1514	Sesotho
1032	Afrikaans	1196	Guarani	1353	Moldavian	1515	Sundanese
1039	Amharic	1203	Gujarati	1356	Marathi	1516	Swedish
1044	Arabic	1209	Hausa	1357	Malay	1517	Swahili
1045	Assamese	1217	Hindi	1358	Maltese	1521	Tamil
1051	Aymara	1226	Croatian	1363	Burmese	1525	Telugu
1052	Azerbaijani	1229	Hungarian	1365	Nauru	1527	Tajik
1053	Bashkir	1233	Armenian	1369	Nepali	1528	Thai
1057	Byelorussian	1235	Interlingua	1376	Dutch	1529	Tigrinya
1059	Bulgarian	1239	Interlingue	1379	Norwegian	1531	Turkmen
1060	Bihari	1245	Inupiak	1393	Occitan	1532	Tagalog
1061	Bislama	1248	Indonesian	1403	(Afan) Oromo	1534	Setswana
1066	Bengali; Bangla	1253	Icelandic	1408	Oriya	1535	Tonga
1067	Tibetan	1254	Italian	1417	Punjabi	1538	Turkish
1070	Breton	1257	Hebrew	1428	Polish	1539	Tsonga
1079	Catalan	1261	Japanese	1435	Pashto; Pushto	1540	Tatar
1093	Corsican	1269	Yiddish	1436	Portuguese	1543	Twi
1097	Czech	1283	Javanese	1463	Quechua	1557	Ukrainian
1103	Welsh	1287	Georgian	1481	Rhaeto-Romance	1564	Urdu
1105	Danish	1297	Kazakh	1482	Kirundi	1572	Uzbek
1109	German	1298	Greenlandic	1483	Romanian	1581	Vietnamese
1130	Bhutani	1299	Cambodian	1489	Russian	1587	Volapük
1142	Greek	1300	Kannada	1491	Kinyarwanda	1613	Wolof
1144	English	1301	Korean	1495	Sanskrit	1632	Xhosa
1145	Esperanto	1305	Kashmiri	1498	Sindhi	1665	Yoruba
1149	Spanish	1307	Kurdish	1501	Sangho	1684	Chinese
1150	Estonian	1311	Kirghiz	1502	Serbo-Croatian	1697	Zulu
1151	Basque	1313	Latin	1503	Singhalese	1703	Not specified
1157	Persian	1326	Lingala	1505	Slovak		
1165	Finnish	1327	Laothian	1506	Slovenian		
1166	Fiji	1332	Lithuanian	1507	Samoan		
1171	Faroese	1334	Latvian; Lettish	1508	Shona		
1174	French	1345	Malagasy	1509	Somali		
1181	Frisian	1347	Maori	1511	Albanian		
1183	Irish	1349	Macedonian	1512	Serbian		

Index to Parts and Controls

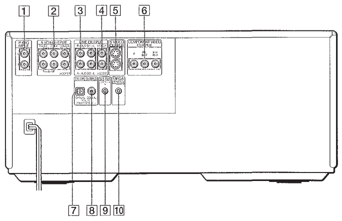
Refer to the pages indicated in parentheses for details

Front Panel



1 **(remote sensor) (7)**
Accepts the remote control signals
2 **I/⏻ (POWER) button and indicator (15)**
Turns on and off the power of the player
3 **FOLDER buttons (26, 27)**
Selects a disc folder
4 **FILE button (27)**
Enters the FILE mode on the Disc Explorer
5 **SORT button (31)**
Enters the SORT mode on the Disc Explorer
6 **Disc compartment (15)**
Insert discs in the disc slots
7 **DOLBY DIGITAL indicator**
Lights up, for example, when:
– playing back Dolby Digital soundtrack on the DVD
– the disc is not inserted
8 **PROGRAM button (43)**
Displays the "PROGRAM" display on the TV screen
9 **REPEAT button (46)**
Displays the "REPEAT" display on the TV screen
10 **Front Panel Display (23)**
Indicates the playing time, etc
11 **▷PLAY button (18)**
Plays a disc
12 **≙OPEN button (15)**
Opens the front cover
13 **❚❚PAUSE button (18)**
Pauses playing a disc
14 **■STOP button (18, 20)**
Stops playing a disc.
15 **EASY PLAY button/indicator (15, 18)**
Press to play the disc in slot 1 or bring slot 1 to the loading position
16 **KEYBOARD jack (30)**
Connect a keyboard to label the discs
17 **EDIT button (28)**
Enters the EDIT mode to label the disc on the Disc Explorer
18 **LOAD button (25)**
Reads the information of the discs loaded in sequence
19 **SHUFFLE button (45)**
Displays the "SHUFFLE" display on the TV screen
20 **TIME/TEXT button (23)**
Displays the playing time of the disc, etc , on the front panel display.
21 **1/ALL DISCS button (17)**
Selects 1 DISC or ALL DISCS play mode
22 **CLEAR button (43, 44, 45, 47)**
Press to return to the continuous play, etc
23 **TITLE button (21)**
Displays the title menu on the TV screen
24 **DISPLAY button (32)**
Displays the Control Menu display on the TV screen to set or adjust the items
25 **DVD MENU button (21)**
Displays the DVD menu on the TV screen
26 **↶ RETURN button (23, 26, 33)**
Press to return to the previously selected screen, etc
27 **←/↑/↓/→/ ENTER button**
Selects and executes the items or settings
28 **Click shuttle (19, 20)**
Changes the playback speed, or selects characters
29 **JOG button/indicator (19)**
Press to play a disc frame by frame
30 **⏮/⏭ PREV/NEXT DIRECT SEARCH/DISC CHANGE dial (15, 18)**
When the DIRECT SEARCH indicator is lit, turn to go to the next chapter or track or to go back to the previous chapter or track
When the DISC CHANGE indicator is lit, turn to rotate the disc slots
31 **DIRECT SERACH indicator/DISC CHANGE indicator/Dial function select button (15, 18)**
Press to select the dial function The indicator of the selected function lights up
32 **MEGA CONTROL button/ indicator (70)**
Press to control the connected CD changer

Rear Panel



[1] **AUDIO INPUT (L, R) connectors (69)**
Connects to the audio output on a Sony CD changer of 5/50/200/300 discs

[2] **5.1CH OUTPUT connectors (13)**
Connects to a receiver (amplifier) having 5 1 channel input connectors

[3] **LINE OUTPUT (AUDIO 1, 2) connectors (8, 10)**
Connects to the audio input connector on the TV oı receiver (amplifier)

[4] **LINE OUTPUT (VIDEO 1, 2) connectors (8)**
Connects to the video input connector on the TV or monitor

[5] **S VIDEO OUTPUT (1, 2) connectors (8, 10)**
Connects to the S video input connector on the TV or monitor

[6] **COMPONENT VIDEO OUTPUT connectors (9)**
Connects to a monitor oı projector having component video input connectors (Y, P_B/B-Y, P_R/R-Y) that conform to the output signals from the player

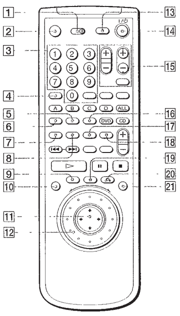
[7] **DIGITAL OUTPUT (OPTICAL) connector (11)**
Connects to an audio component using the optical digital connecting cord

[8] **DIGITAL OUTPUT (COAXIAL) connector (11)**
Connects to an audio component using the coaxial digital connecting cord

[9] **S-LINK connector (8)**
Connects to the S-link connector on an external component

[10] **MEGA CONTROL connector (69)**
Connects to the control connector on a Sony CD changer of 5/50/200/300 discs

Remote



[1] **TV/DISC EXPLORER/DVD switch (25, 27)**
Selects to control the player, the disc explorer or the TV with the ıemote

[2] **MEGA CONTROL button (70)**
Press to control the connected CD changer

[3] **Number buttons/ENTER button**
Selects and executes the items or settings

[4] **CLEAR button (43, 44, 45, 47)**
Press to return to the continuous play, etc

[5] **PROGRAM button (43)**
Displays the "PROGRAM" display on the TV screen

[6] **SHUFFLE button (45)**
Displays the "SHUFFLE" display on the TV screen

[7] **AUDIO/FILE button (27, 38)**
Changes the sound while playing a disc (AUDIO)
When [1] is set to DISC EXPLORER, enters the FILE mode (FILE).

[8] **ANGLE/SORT button (31, 41)**
Changes the angles when playing a DVD (ANGLE)
When [1] is set to DISC EXPLORER, enters the SORT mode (SORT)

[9] **TITLE button (21)**
Displays the title menu on the TV screen

[10] **DISPLAY button (32)**
Displays the Control Menu display on the TV screen to set or adjust the items

[11] **←/↑/↓/→/ ENTER button**
Selects and executes the items or settings

[12] **Click shuttle (19, 29)**
Changes the playback speed, or selects characters

[13] **SET UP button (55)**
Displays the setup display on the TV screen to set or adjust the items

[14] **I/⏻ (POWER) button (15, 67)**
Turns on and off the power of the player
When [1] is set to TV, turns on and off the power of the TV.

[15] **TV operation buttons (68)**
Controls TVs

[16] **REPEAT button (46)**
Displays the "REPEAT" display on the TV screen

[17] **SUBTITLE/EDIT button (28, 40)**
Displays the SUBTITLE menu in the Control Menu display (SUBTITLE)
When [1] is set to DISC EXPLORER, enters the EDIT mode to label the disc (EDIT)

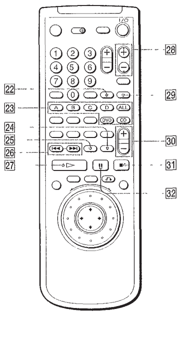
[18] **1/ALL DISCS/LOAD button (17, 25)**
Selects 1 DISC or ALL DISCS play mode (1/ALL DISCS)
When [1] is set to DISC EXPLORER, reads the information of the discs loaded in sequence (LOAD)

[19] **DVD MENU button (21)**
Displays the DVD menu on the TV screen

[20] **↺RETURN button (23, 26, 33)**
Press to return to the previously selected screen, etc

[21] **JOG button/indicator (19)**
Press to play a disc frame by frame

Remote



[22] **TIME/TEXT button (23)**
Displays the playing time of the disc, etc , on the front panel display.

[23] **FOLDER buttons (26)**
Displays the disc information such as the jacket picture and Disc Memo in the disc folder

[24] **BOOKMARK button (53)**
Press to set a bookmark

[25] **PICTURE MEMORY button (59)**
Press to store a picture in memory.

[26] **◀◀/▶▶PREV/NEXT buttons (18)**
Press to go to the next chapter or track or to go back to the previous chapter or track

[27] **▷PLAY button (18)**
Plays a disc

[28] **DISC SKIP +/– button (15, 18)**
When [1] is set to DISC EXPLORER or DVD, press to search the discs in the folder

[29] **EASY PLAY button (15, 18)**
Press to play the disc in slot 1 or bring slot 1 to the loading position

[30] **AV VOL (volume) buttons (69)**
Controls the volume of AV receivers (amplifiers)

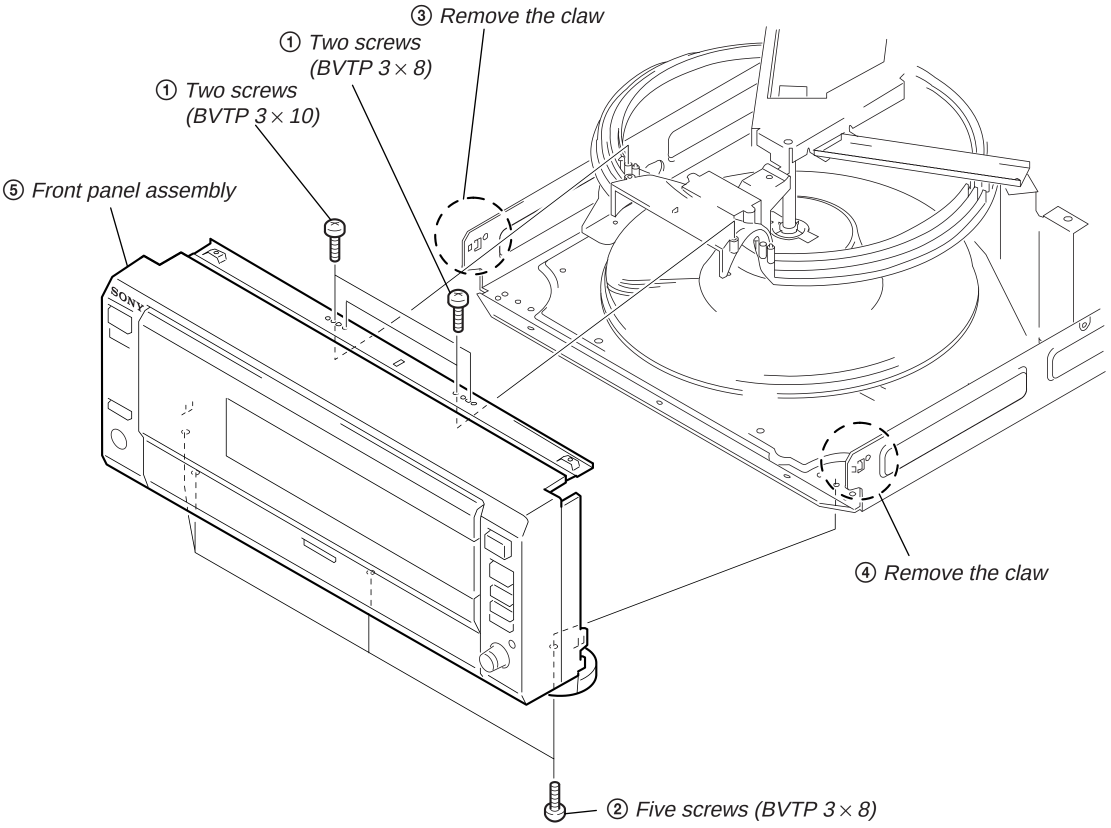
[31] **■STOP button (18, 20)**
Stops playing a disc.

[32] **IIPAUSE button (18)**
Pauses playing a disc

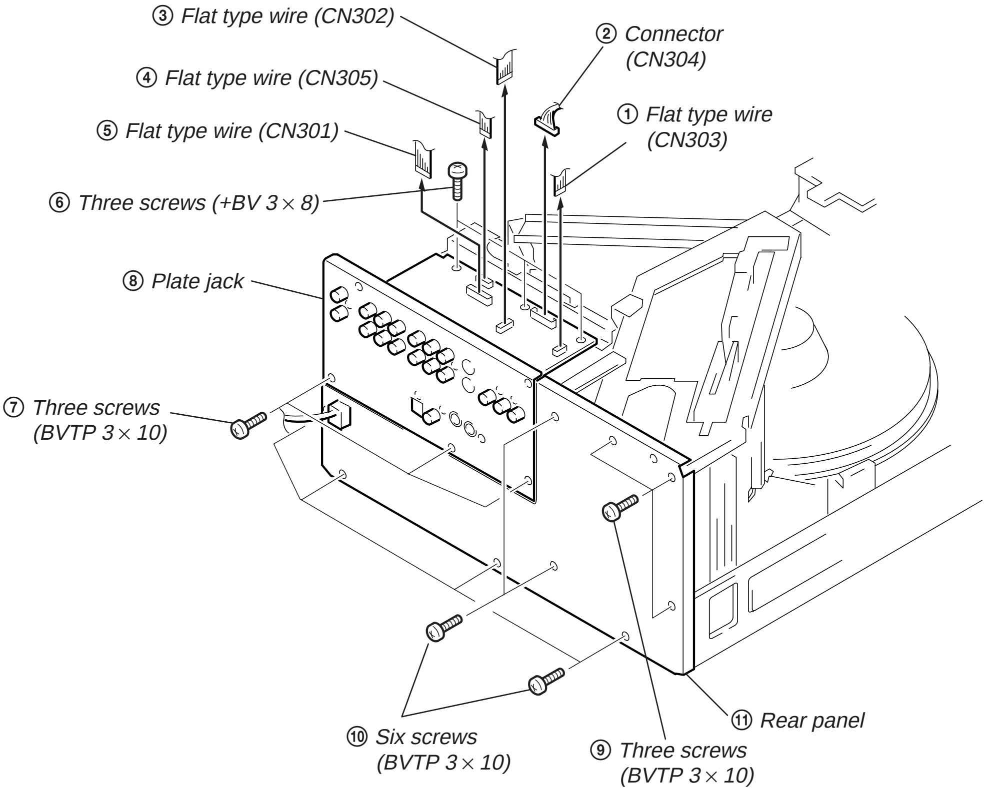
SECTION 2
DISASSEMBLY

NOTE: Follow the disassembly procedure in the numerical order given.

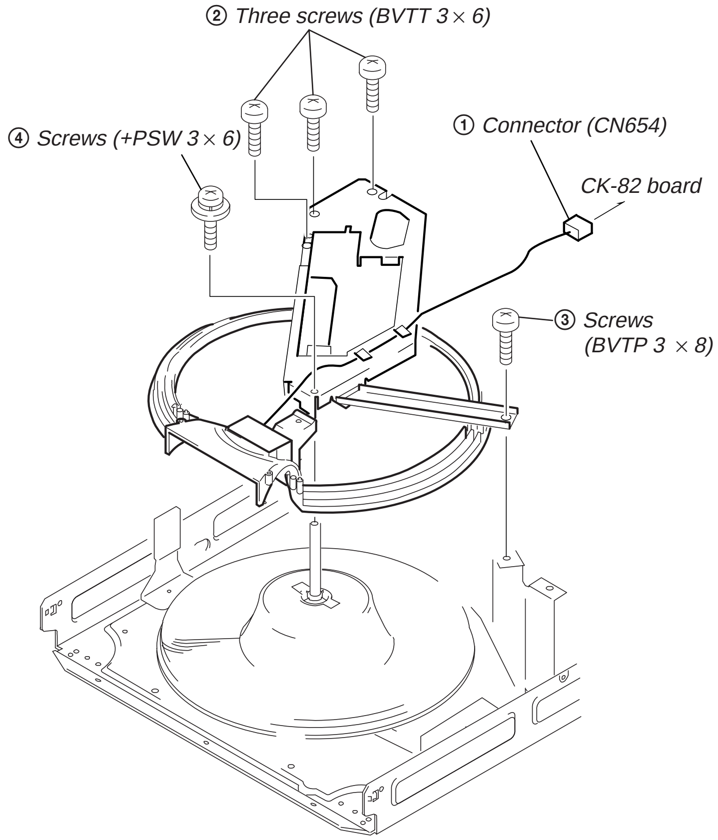
2-1. FRONT PANEL

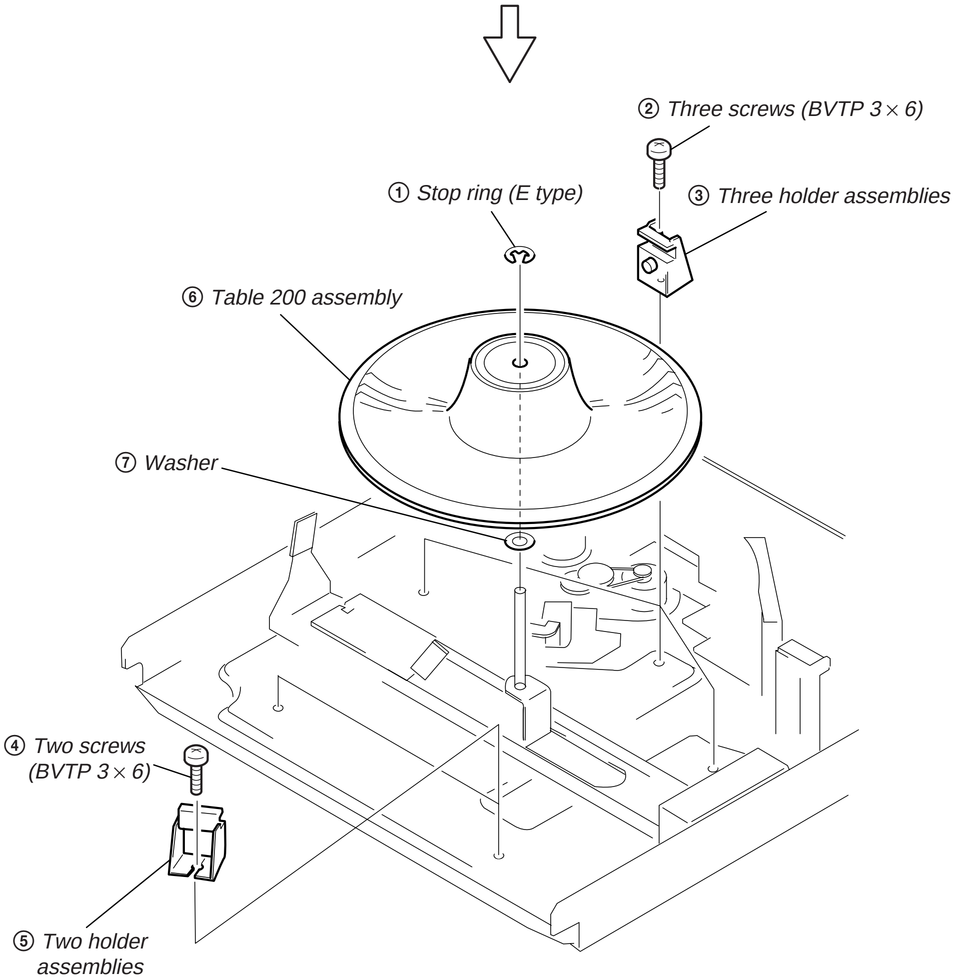


2-2. REAR PANEL, PLATE JACK

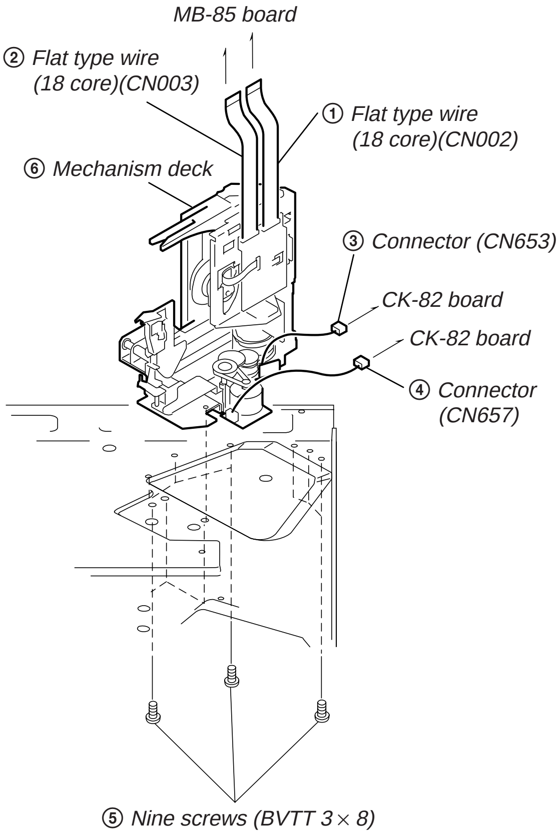


2-3. TABLE 200 ASSEMBLY

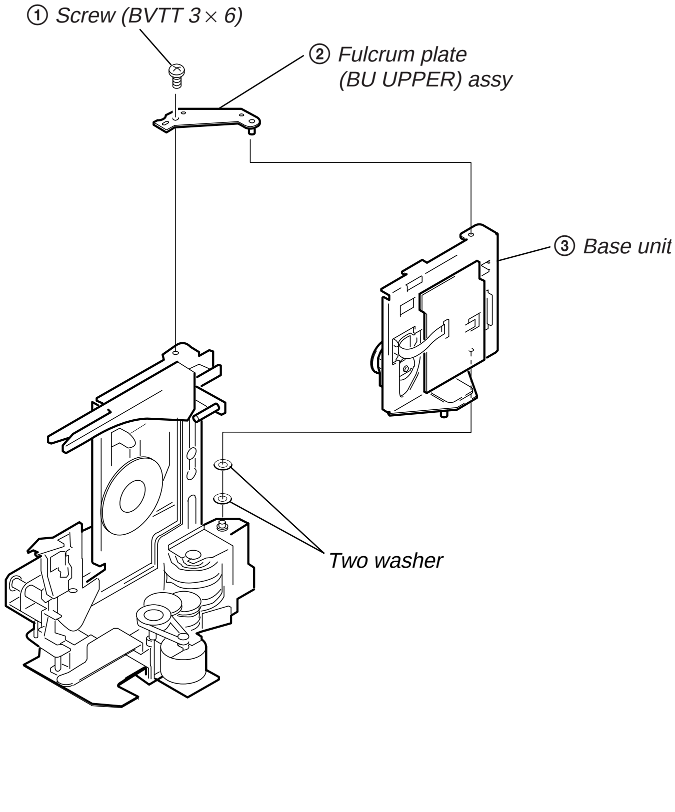




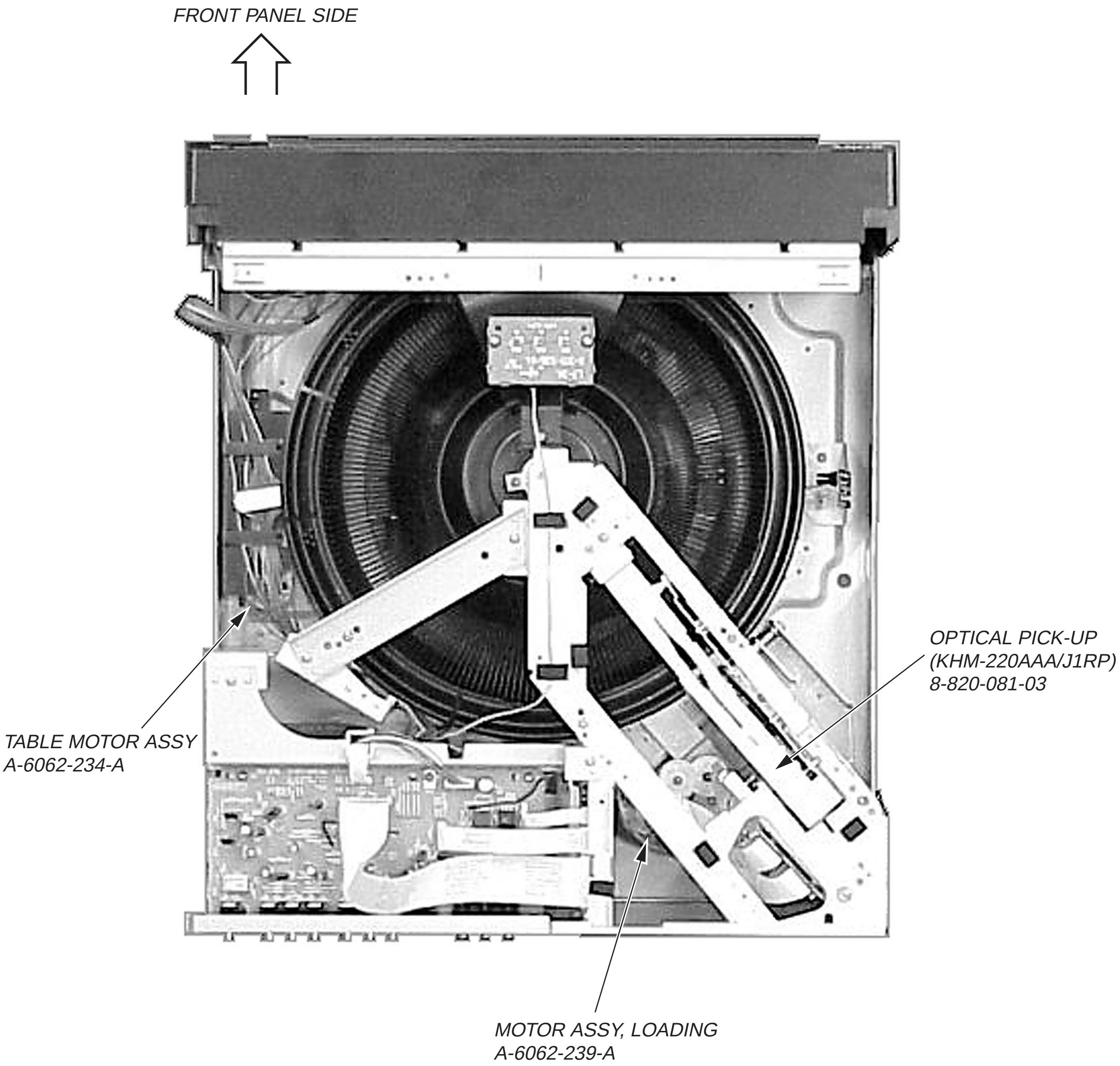
2-4. MECHANISM DECK



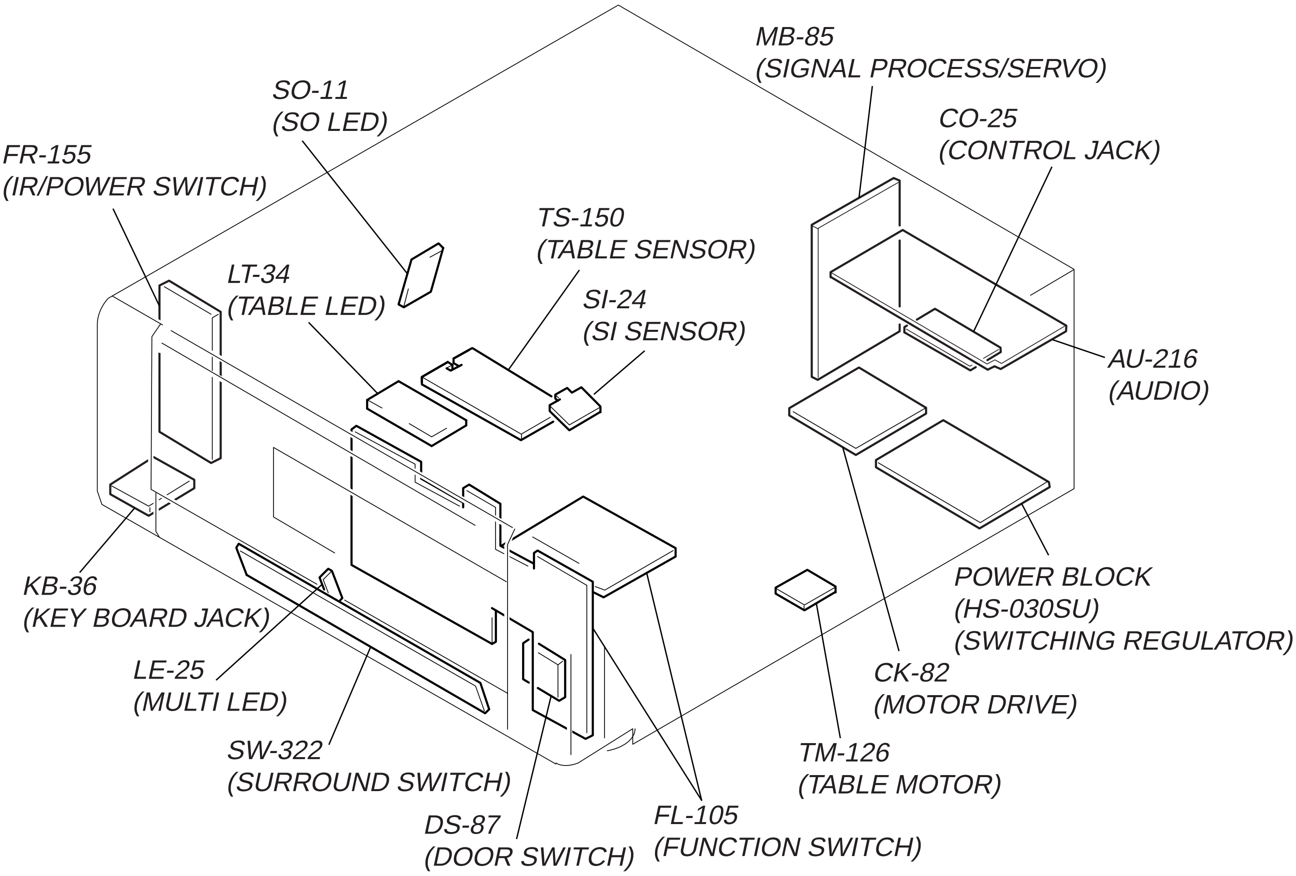
2-5. BASE UNIT

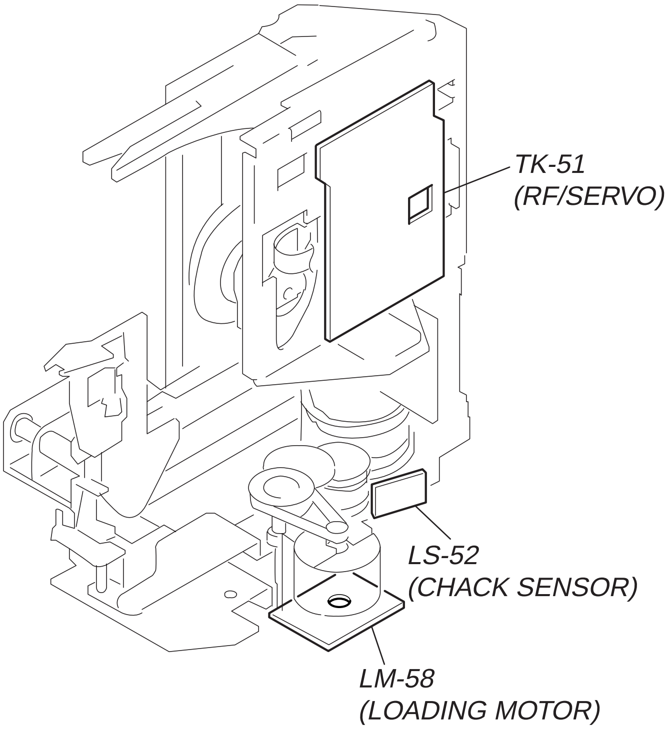


2-6. INTERNAL VIEWS



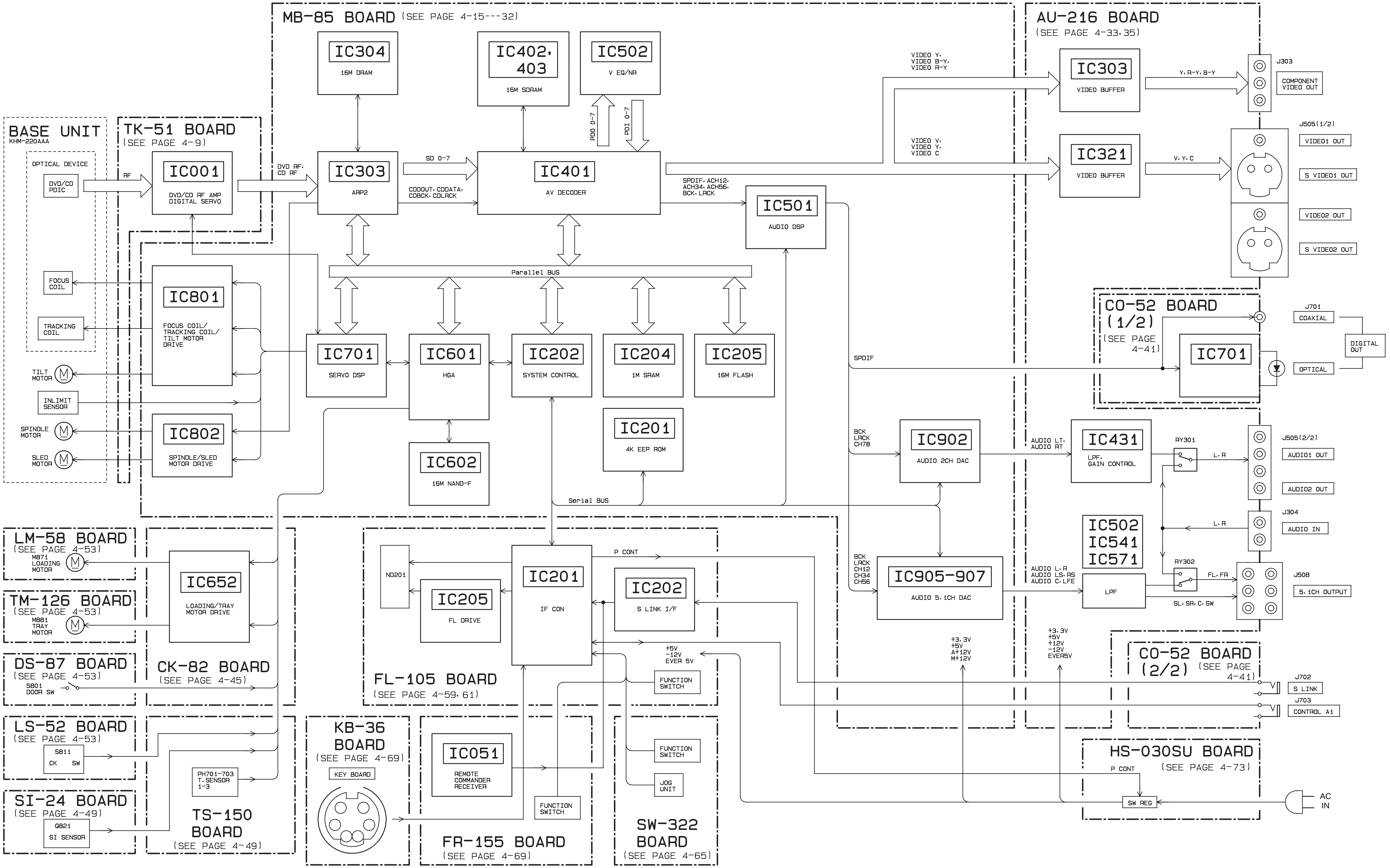
2-7. CIRCUIT BOARDS LOCATION





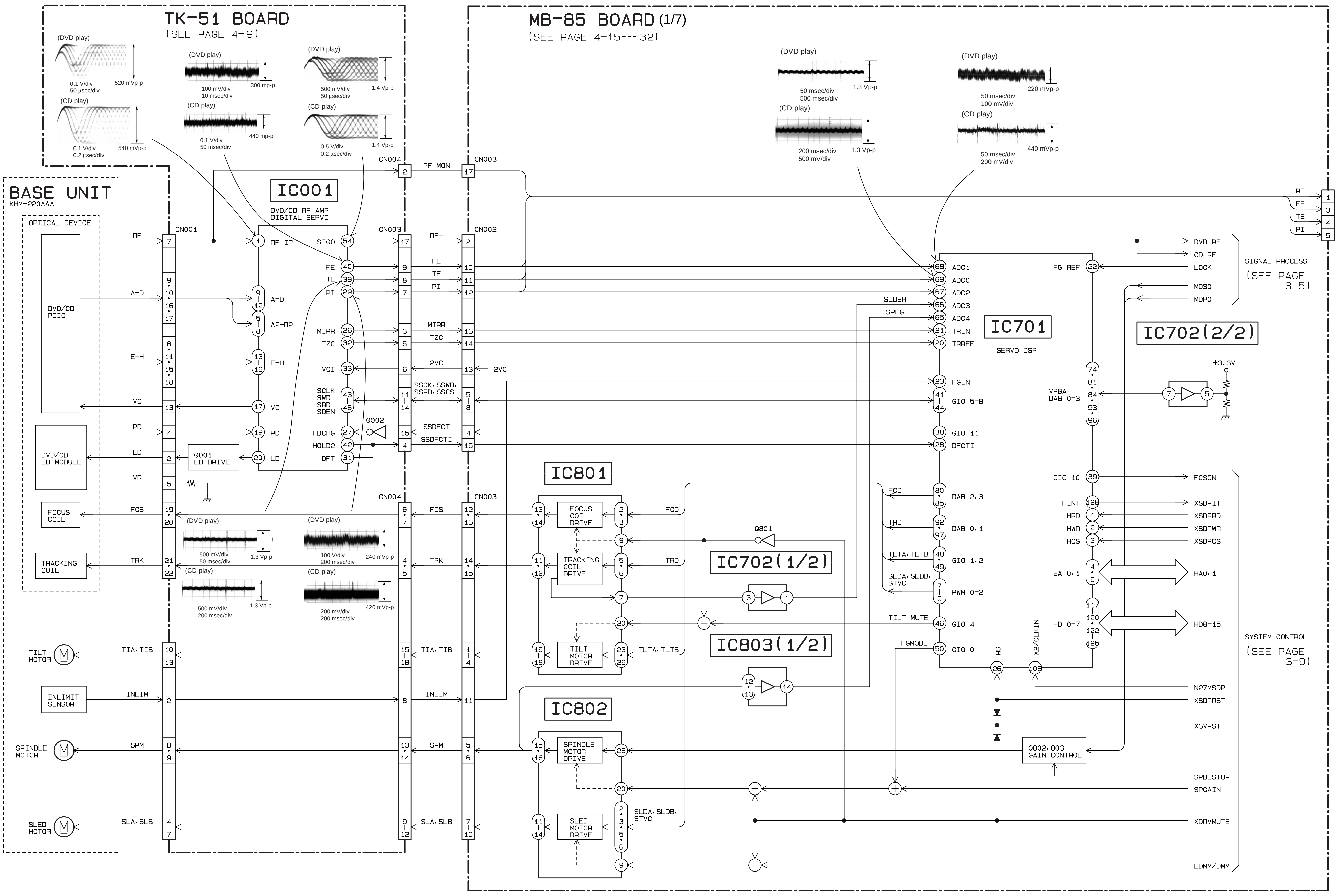
SECTION 3
BLOCK DIAGRAMS

3-1. OVERALL BLOCK DIAGRAM

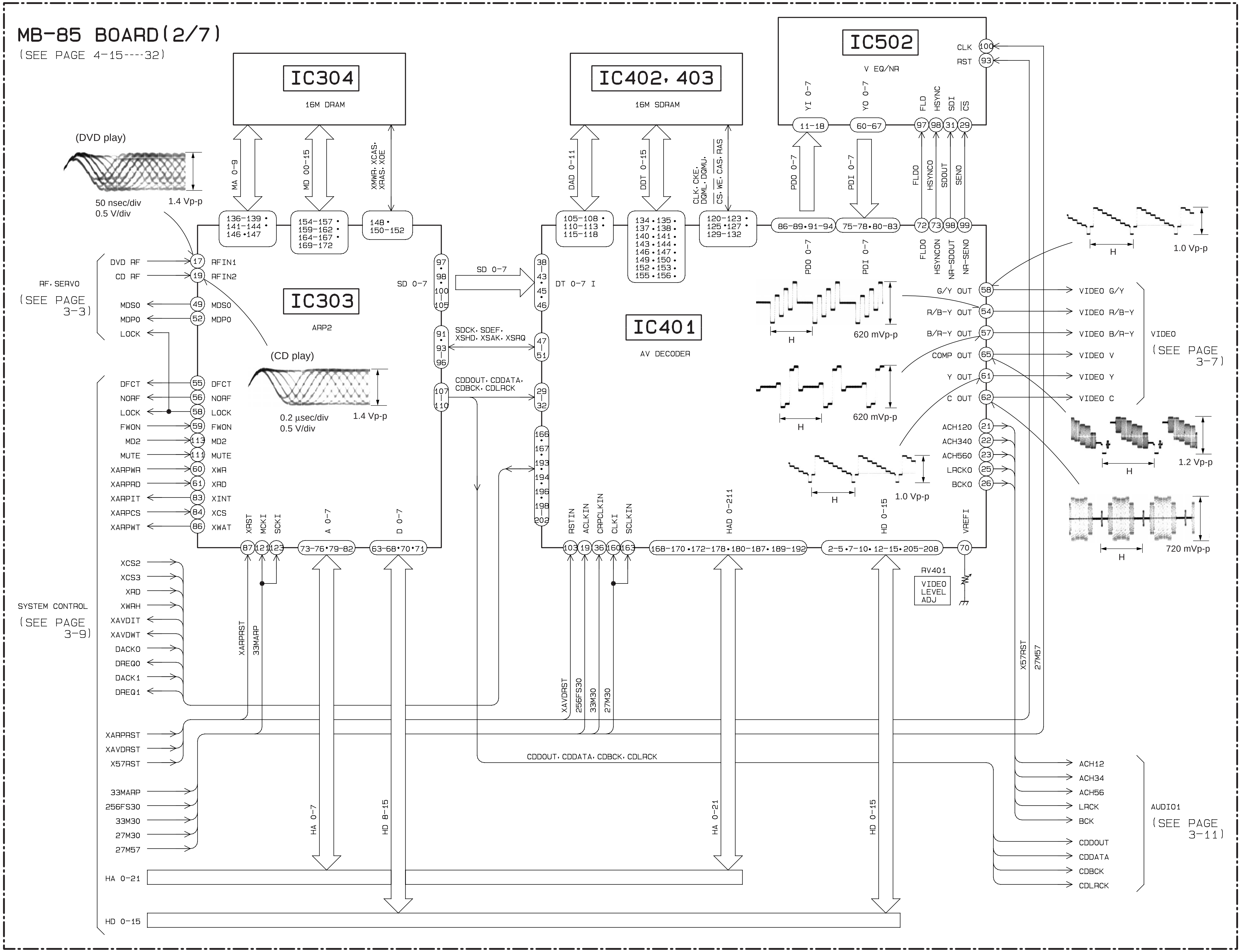


16

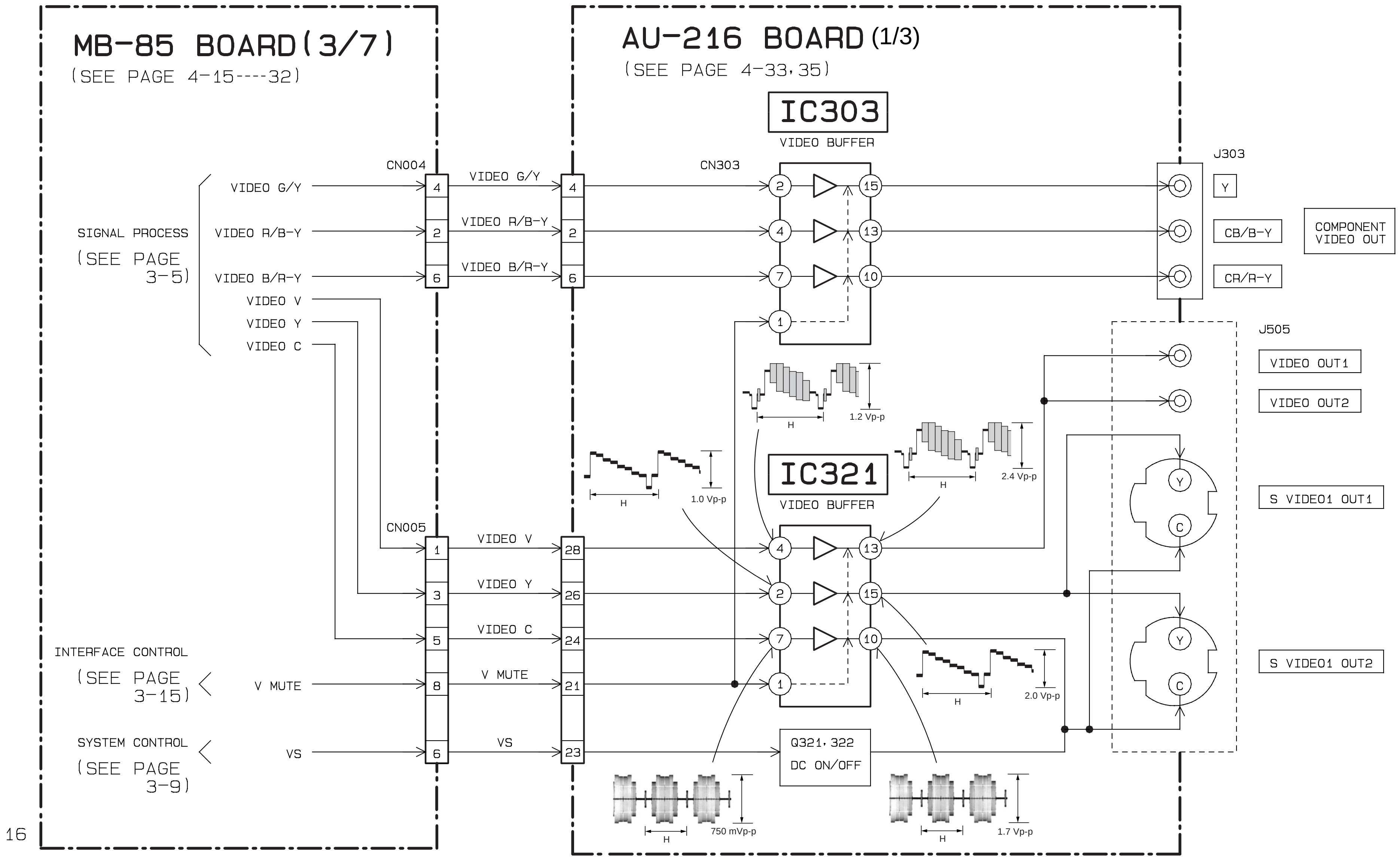
3-2. RF/SERVO BLOCK DIAGRAM



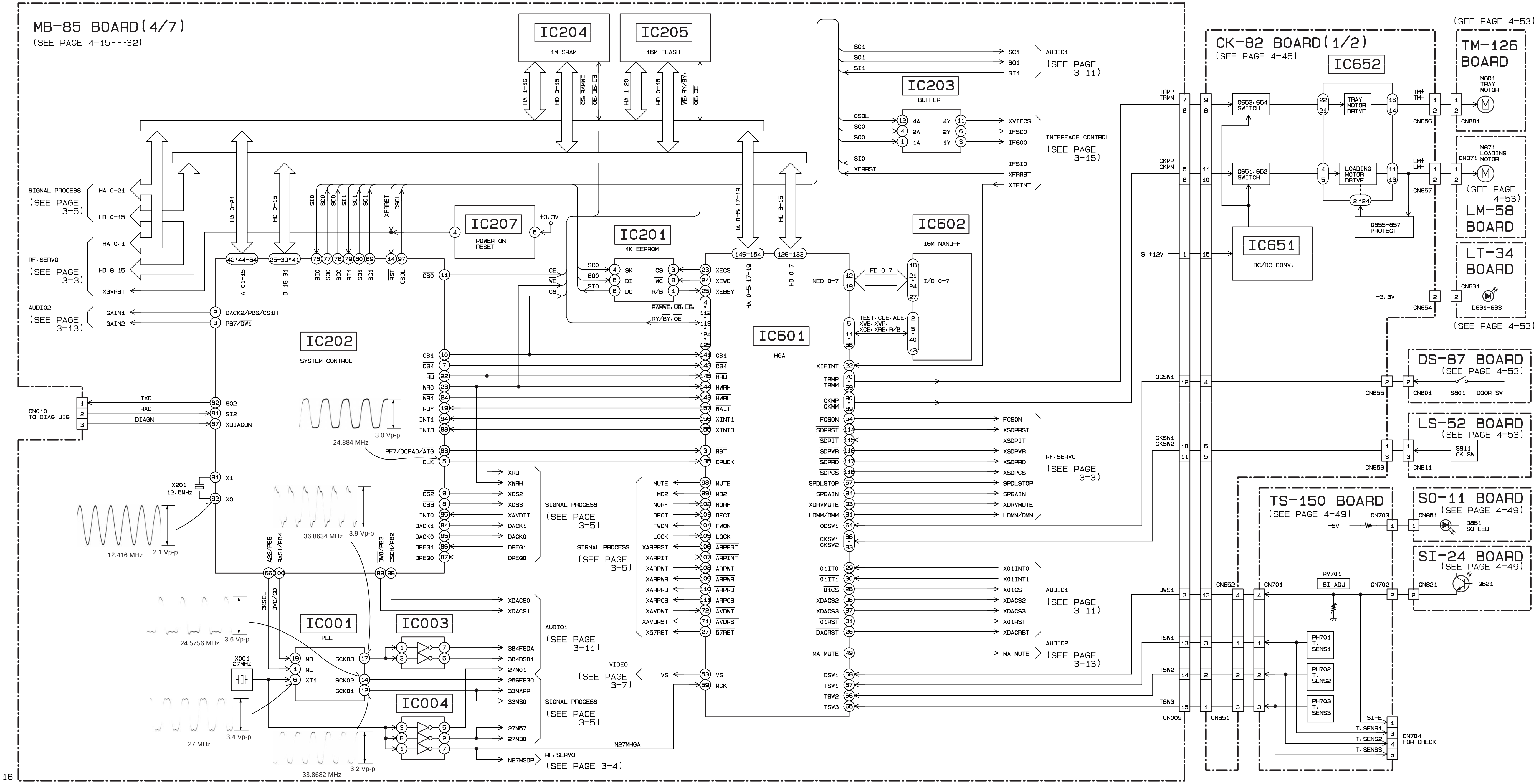
3-3. SIGNAL PROCESS BLOCK DIAGRAM



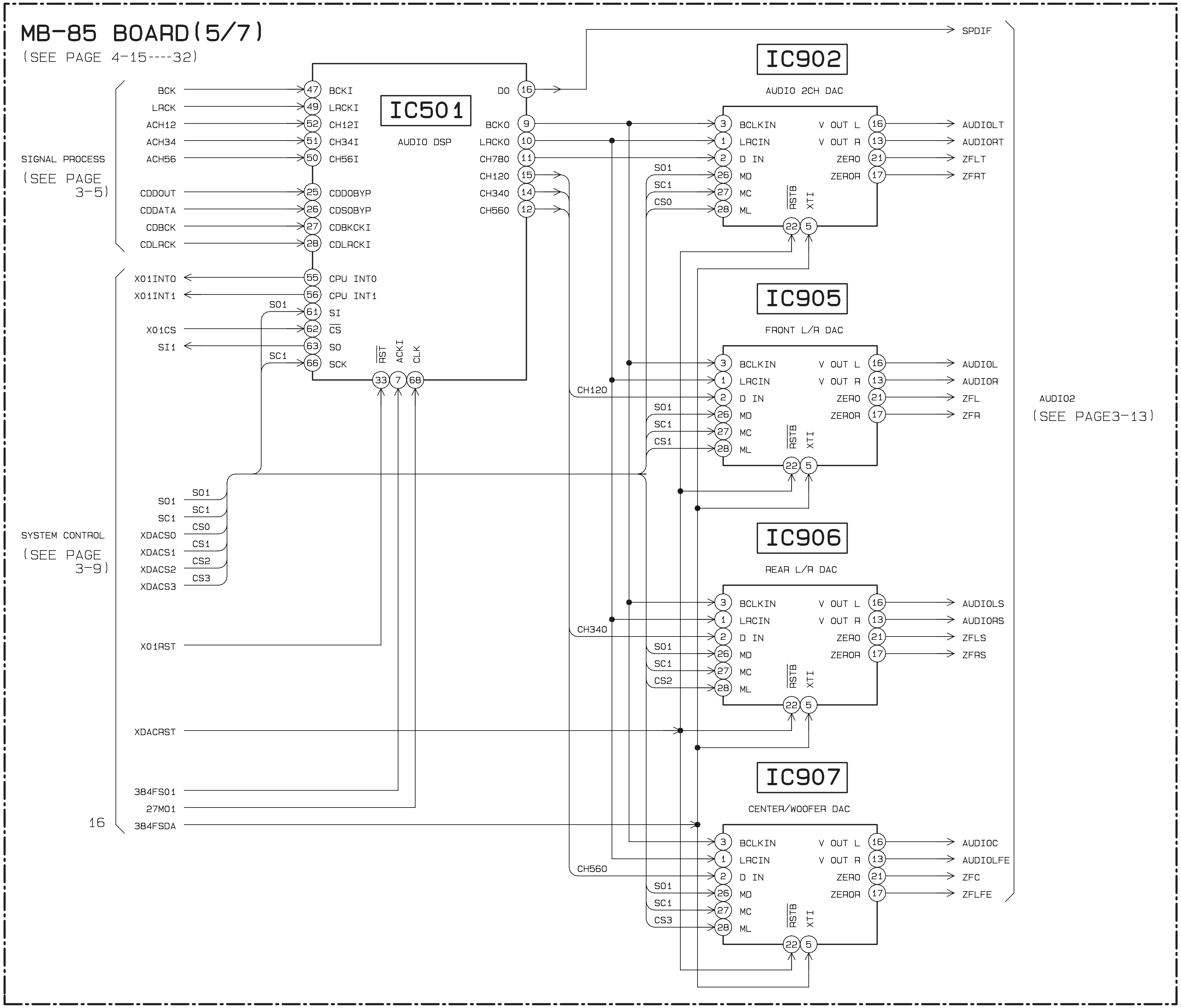
3-4. VIDEO BLOCK DIAGRAM



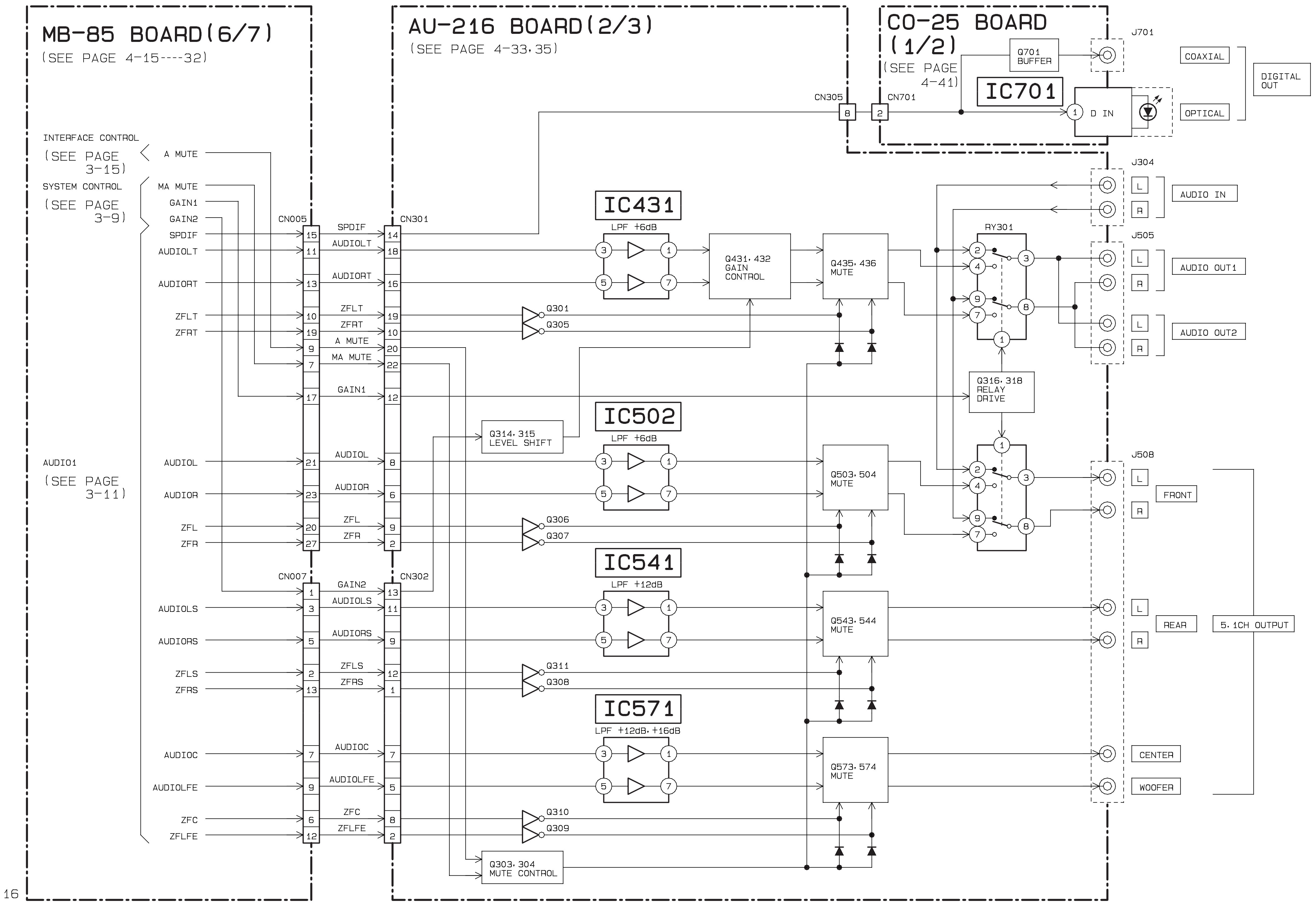
3-5. SYSTEM CONTROL BLOCK DIAGRAM



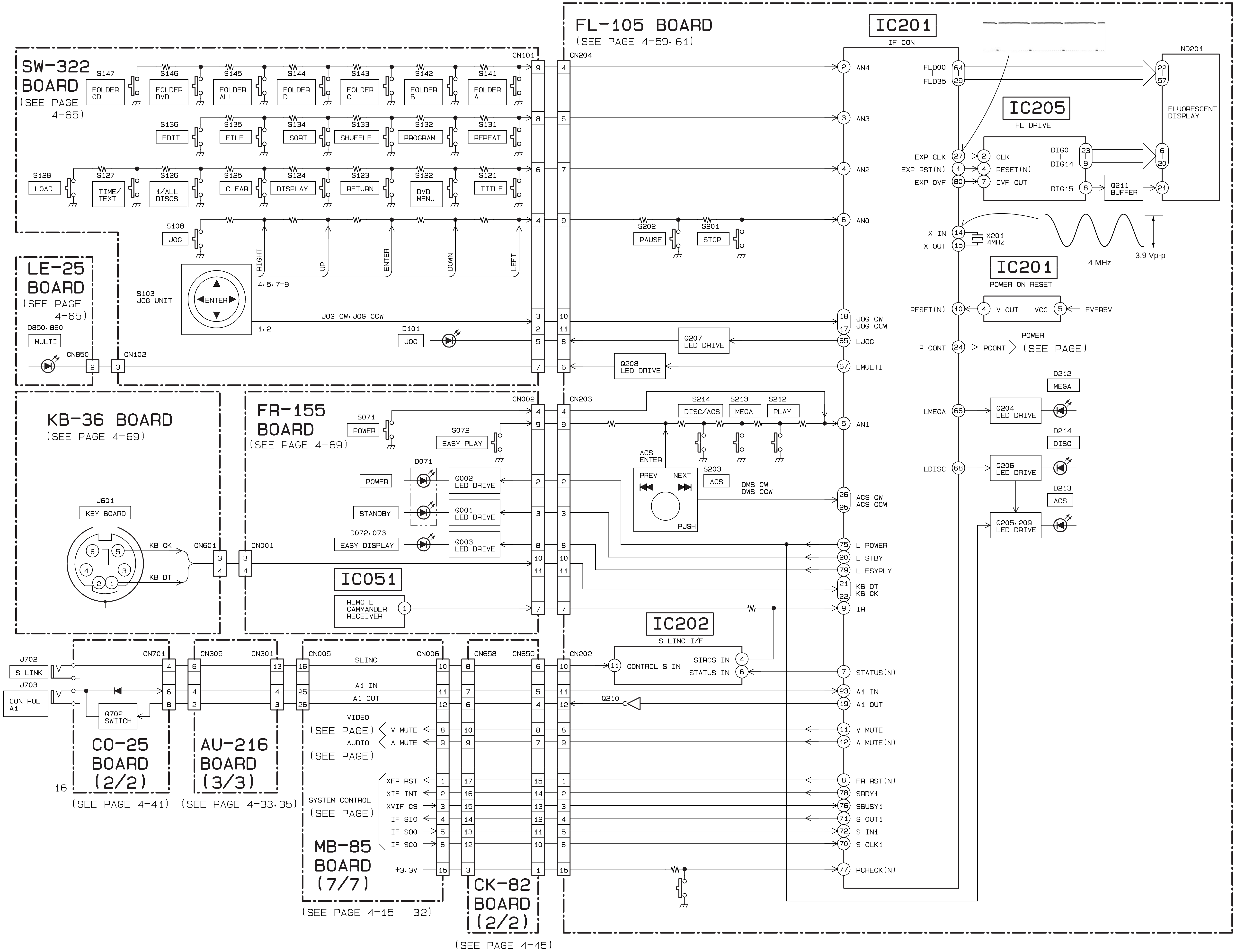
3-6. AUDIO BLOCK DIAGRAM-1



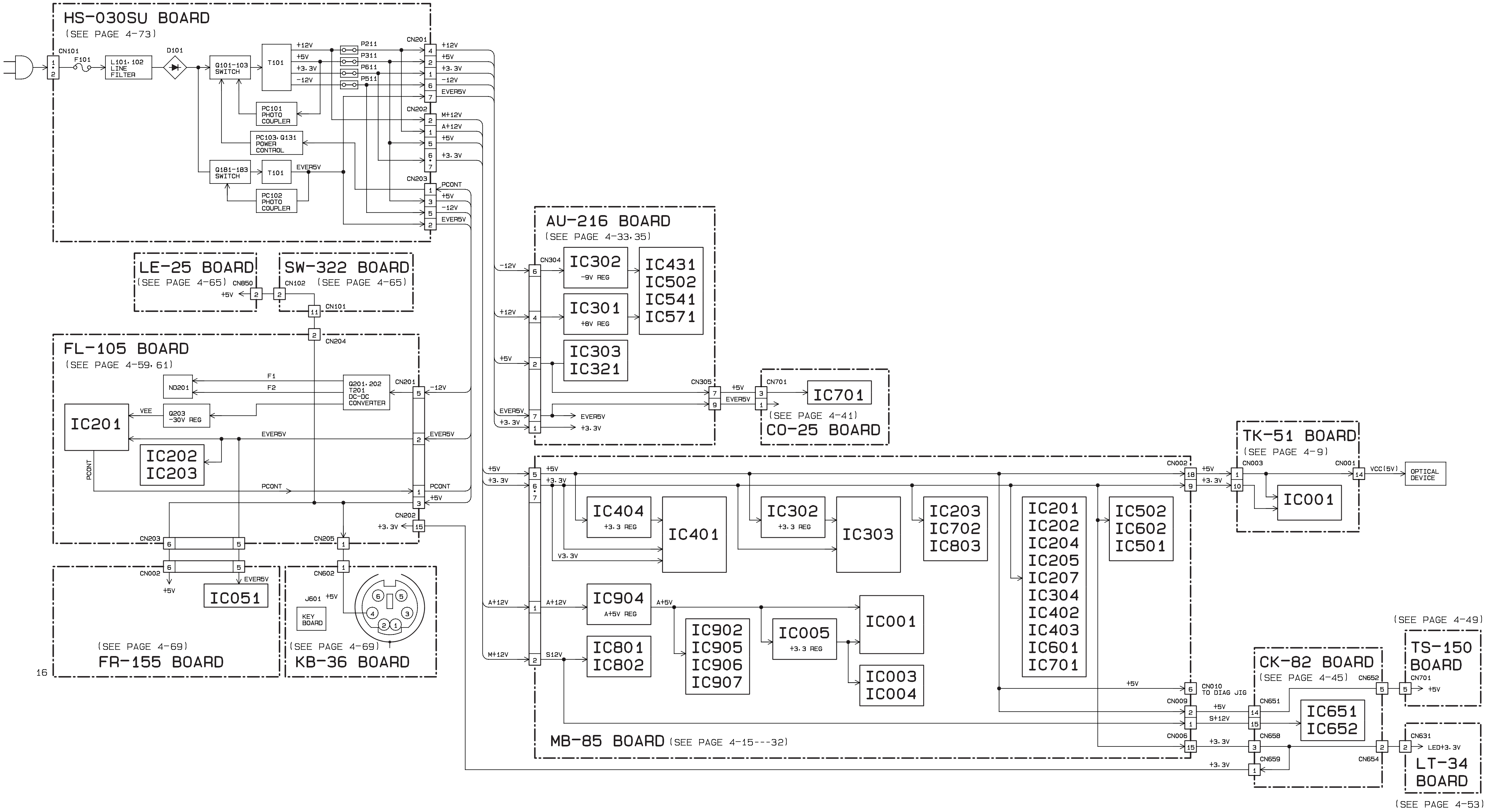
3-7. AUDIO BLOCK DIAGRAM-2



3-8. INTERFACE CONTROL BLOCK DIAGRAM



3-9. POWER BLOCK DIAGRAM



SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR WIRING BOARDS AND SCHEMATIC DIAGRAMS
(In addition to this, the necessary note is printed in each block)

(For printed wiring boards)
- ○——— : indicates a lead wire mounted on the component side.
- ●——— : indicates a lead wire mounted on the printed side.
- ○ : Through hole.
- ░░░ : Pattern from the side which enables seeing.
  (The other layers' patterns are not indicated.)

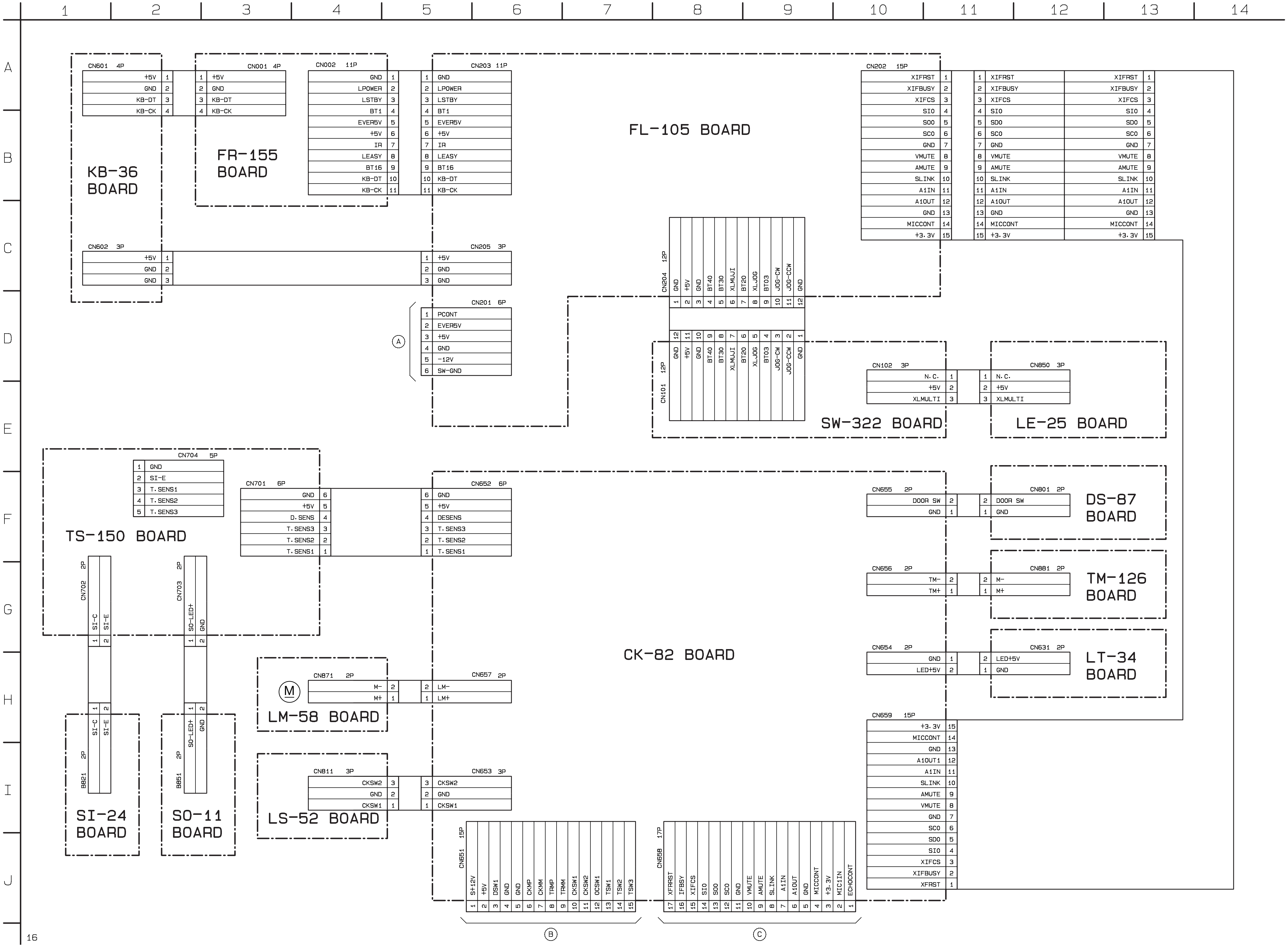
Caution:	
Pattern face side: (Side B)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Side A)	Parts on the parts face side seen from the parts face are indicated.

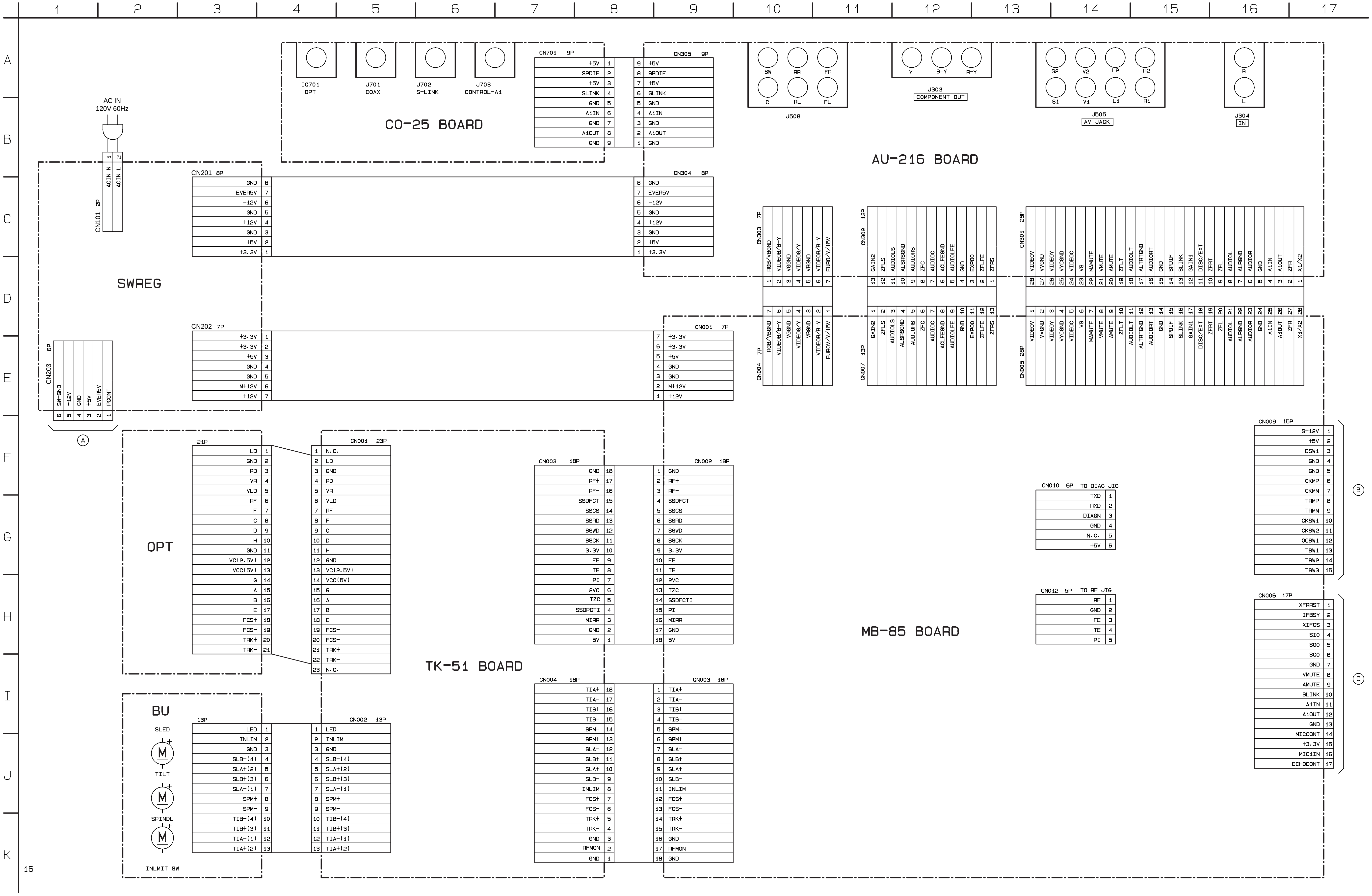
(For schematic diagrams)
- All capacitors are in μF unless otherwise noted. pF : μμF. 50V or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, 1/4 W (Chip resistors : 1 /10 W) un-less otherwise specified.
  kΩ=1000Ω, MΩ=1000kΩ.
- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, be-cause it is damaged by the heat.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- [non flammable resistor symbol] : non flammable resistor
- [fusible resistor symbol] : fusible resistor
- ▭ : panel designation
- △ : internal component.
- ▭ : adjustment for repair.
- **B +** : B+ Line
- **B −** : B– Line
- Circled numbers refer to waveforms.
- Voltages are dc between measurement point.
- Readings are taken with a color-bar signals on DVD refer-ence disc and when playing CD reference disc.
- Readings are taken with a digital multimeter (DC 10MW).
- Voltage variations may be noted due to normal production toler-ances.

Note :	**Note :**
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, pleas include the board name.

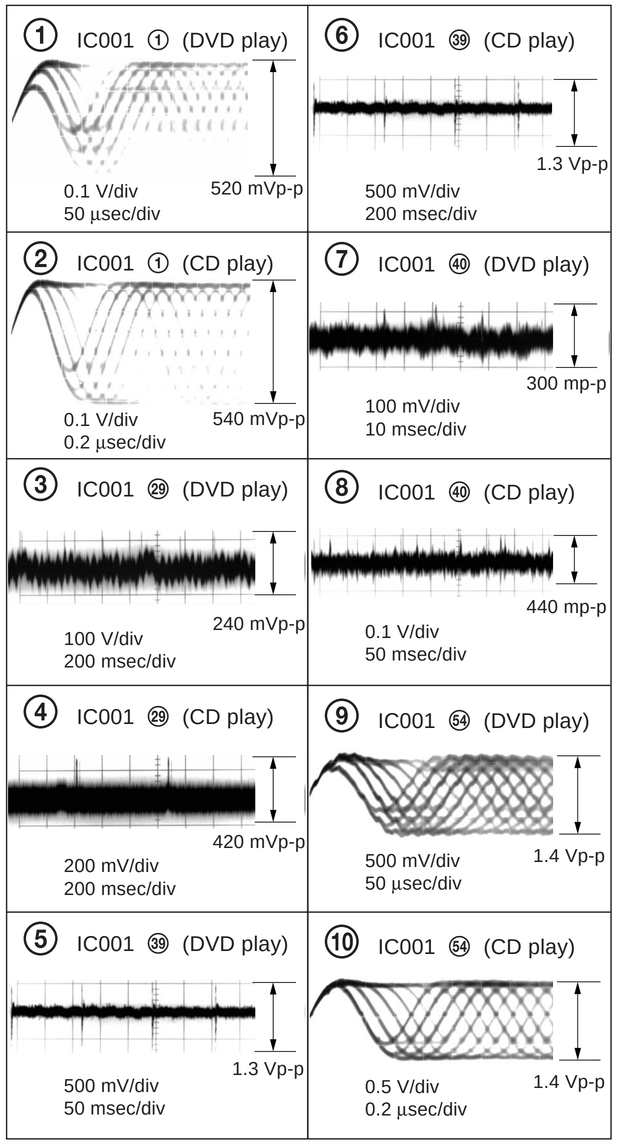
4-1. FRAME SCHEMATIC DIAGRAM

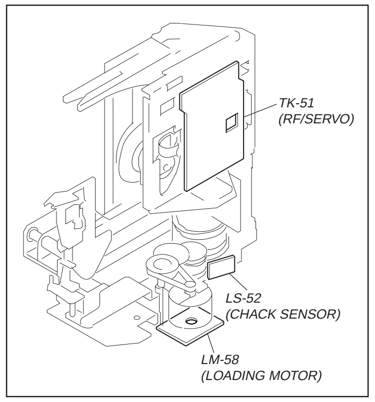



CO-25 BOARD
IC701 OPT
J701 COAX
J702 S-LINK
J703 CONTROL-A1
CN701 9P
CN305 9P
AU-216 BOARD
J508
J303 COMPONENT OUT
J505 AV JACK
J304 IN
AC IN 120V 60Hz
CN101 2P
ACIN N
ACIN L
SWREG
CN201 8P
CN304 8P
CN202 7P
CN001 7P
CN203 6P
CN303 7P
CN302 13P
CN301 28P
CN004 7P
CN007 13P
CN005 28P
OPT
21P
CN001 23P
TK-51 BOARD
CN003 18P
CN002 18P
CN004 18P
CN003 18P
BU
SLED
TILT
SPINDL
INLMIT SW
13P
CN002 13P
MB-85 BOARD
CN010 6P TO DIAG JIG
CN012 5P TO RF JIG
CN009 15P
CN006 17P
16

4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

TK-51 BOARD



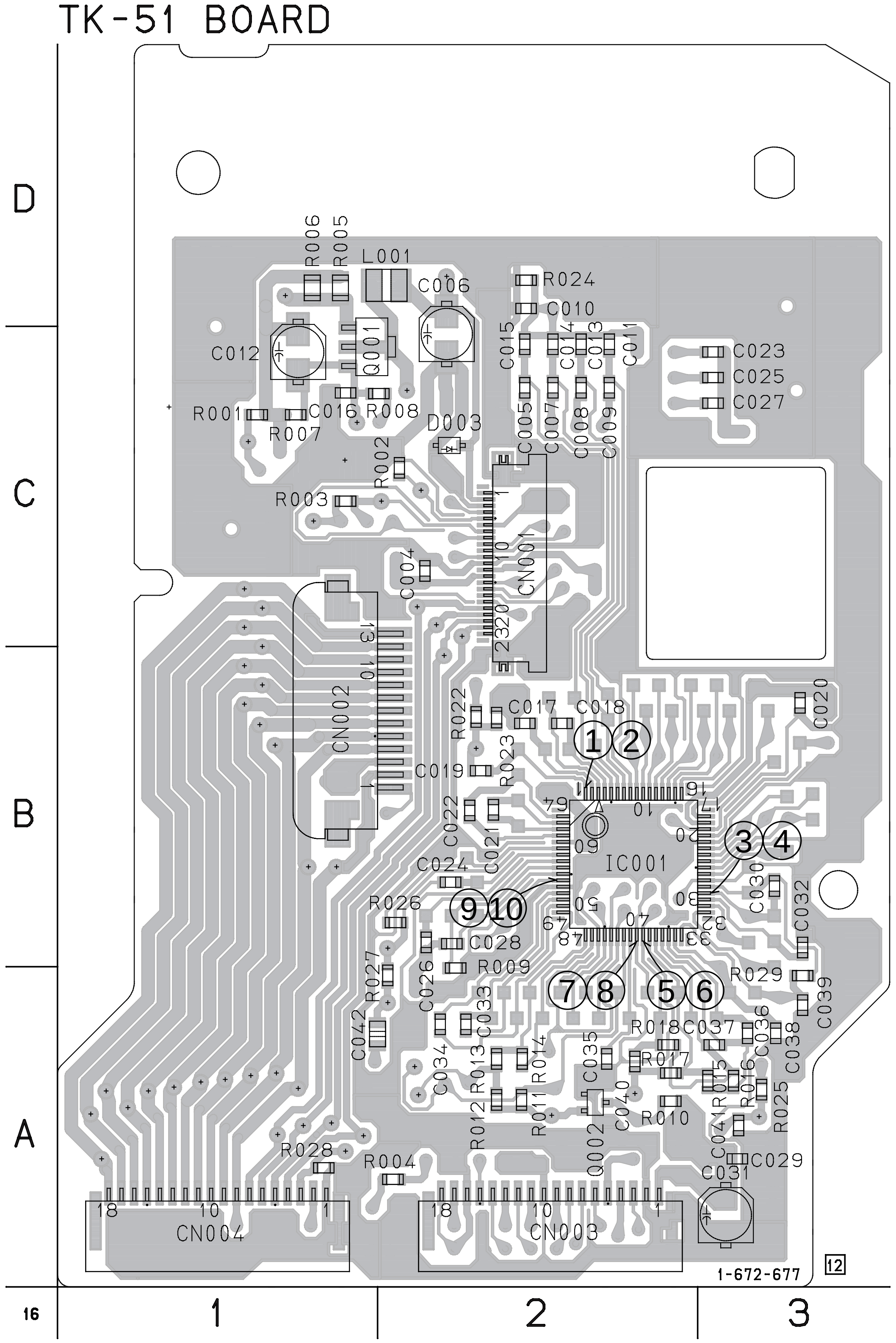


For printed wiring boards

There are few cases that the part printed on this diagram isn't mounted in this model.

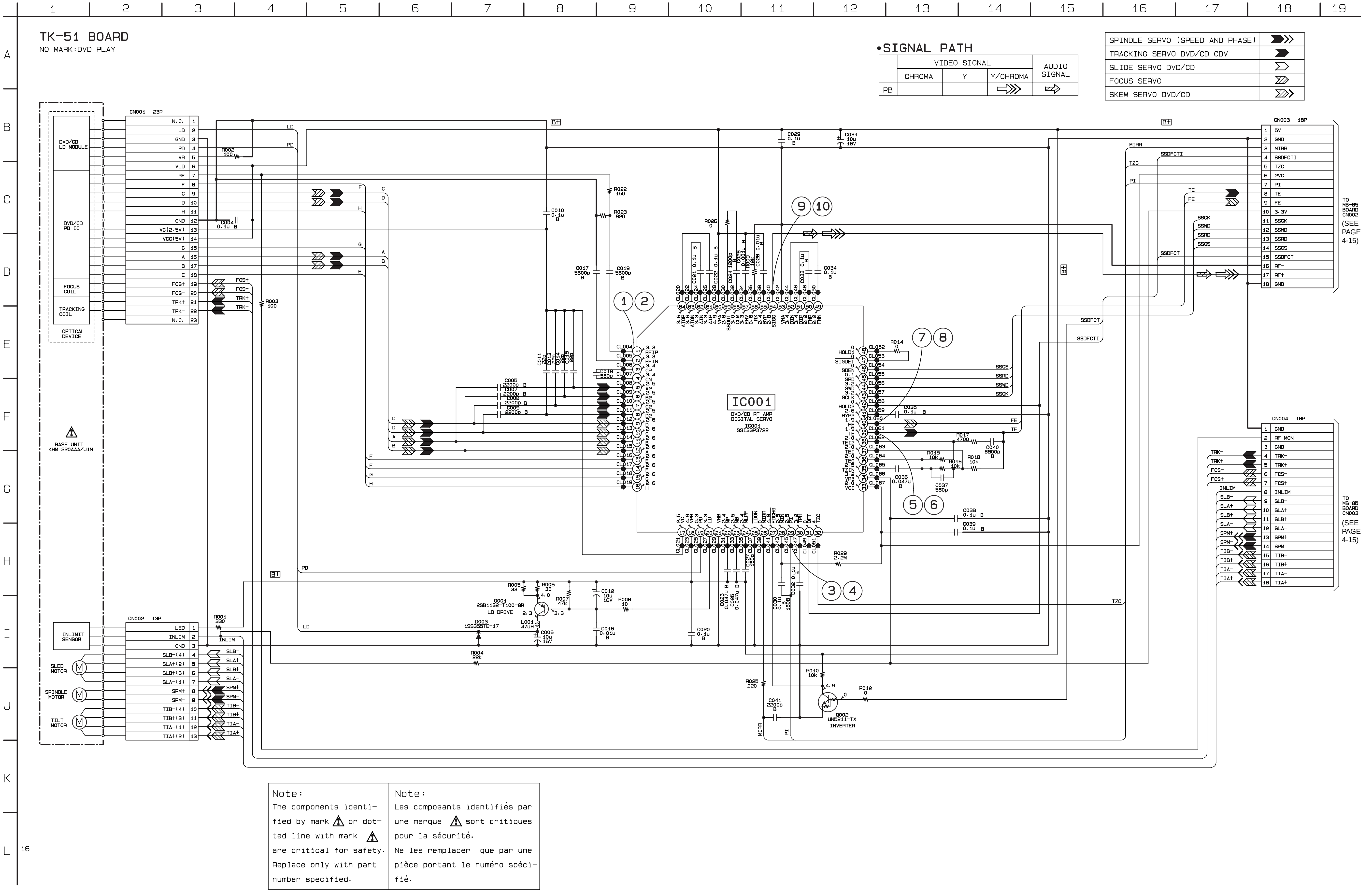
TK-51 (RF/SERVO) PRINTED WIRING BOARD

— Ref. No. TK-51 Board; 5,000 Series —



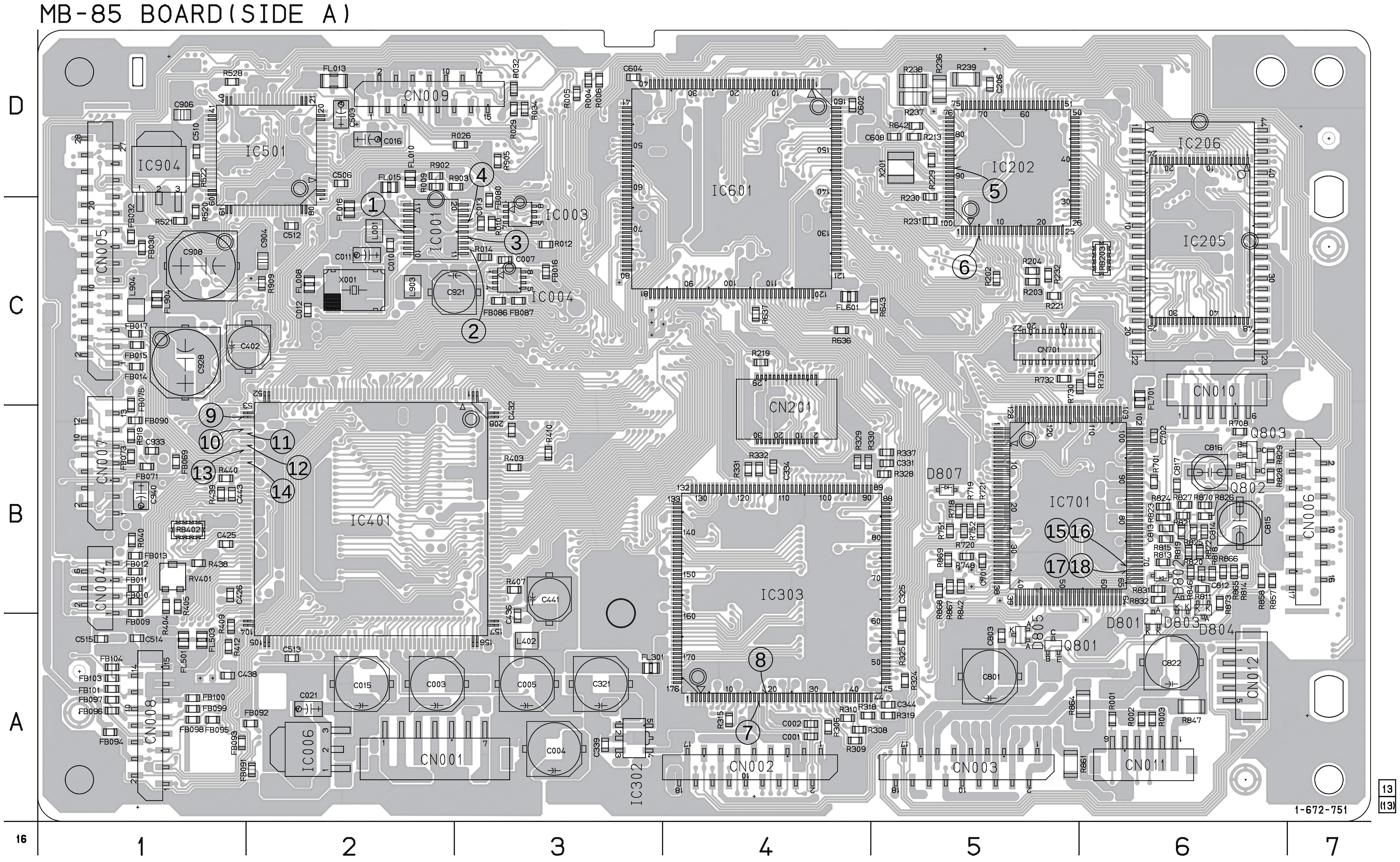
TK-51 (RF/SERVO) SCHEMATIC DIAGRAM

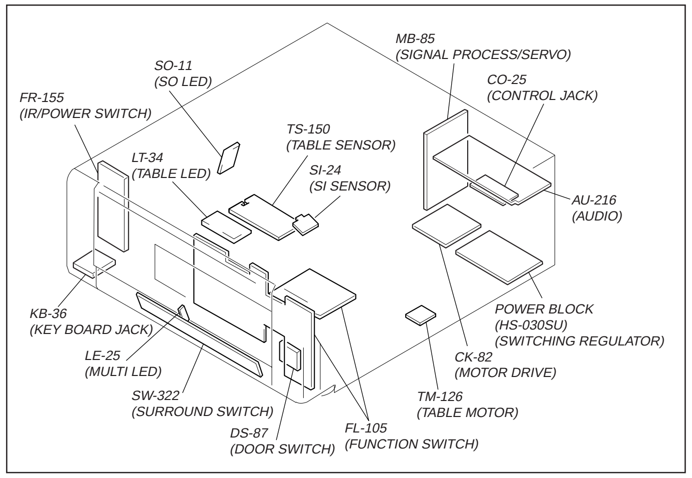
— Ref. No. TK-51 Board; 5,000 Series —



Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

MB-85 (SIGNAL PROCESS/SERVO) PRINTED WIRING BOARD (SIDE A)
— Ref. No. MB-85 Board; 4,000 Series —





For printed wiring boards

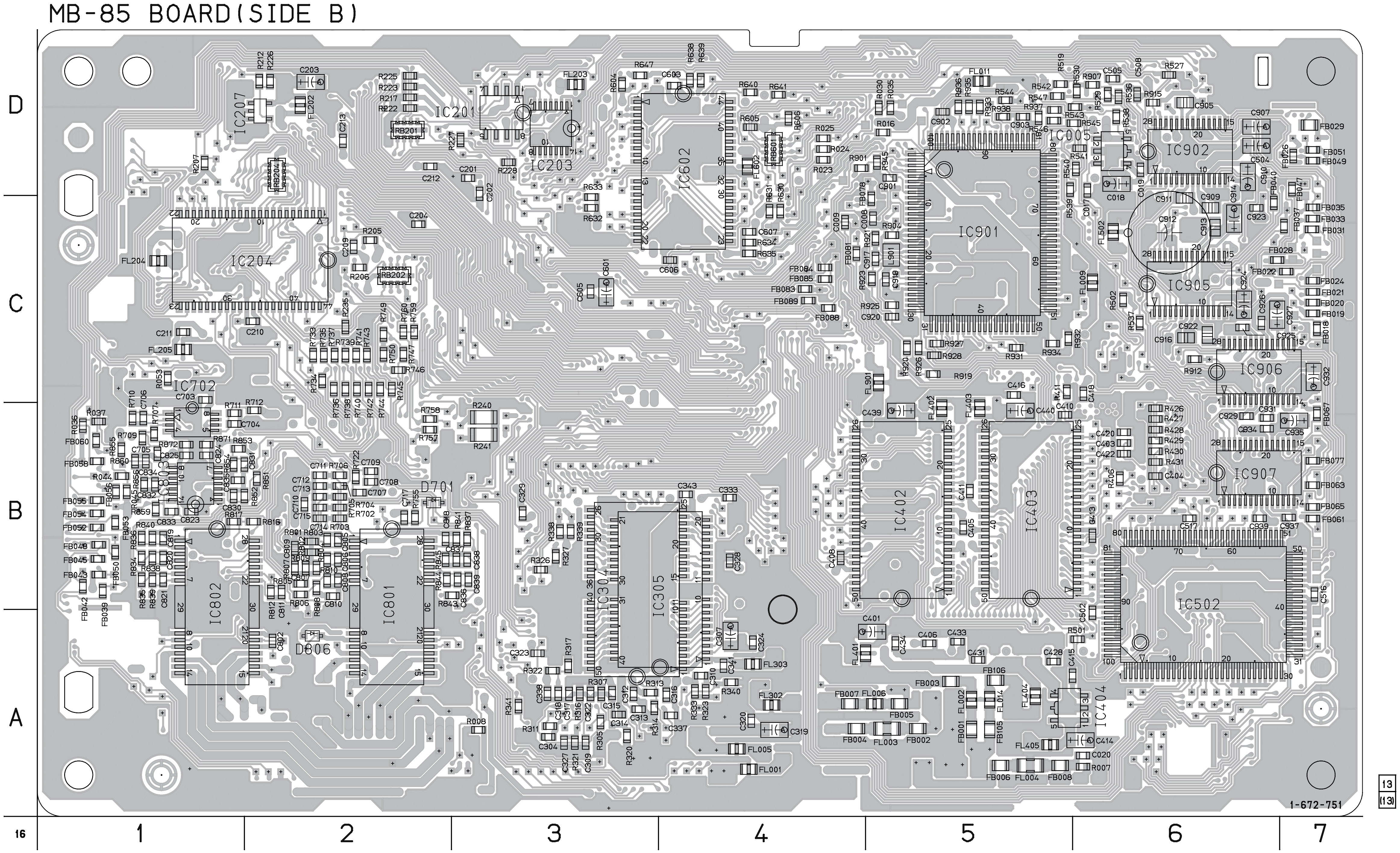
There are few cases that the part printed on this diagram isn’t mounted in this model.

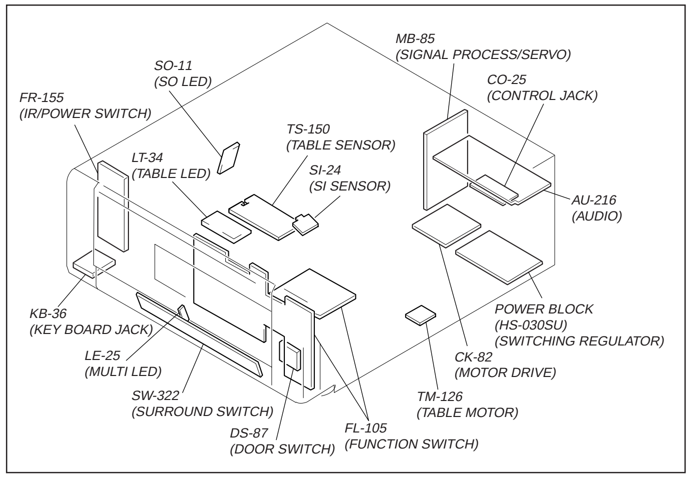
MB-85 BOARD (SIDE A)

CN001	A-2	D801	A-6	IC202	D-5
CN002	A-4	D802	B-6	IC205	C-6
CN003	A-5	D803	A-6	IC302	A-3
CN004	B-1	D804	A-6	IC303	B-4
CN006	B-7	D805	A-5	IC401	B-2
CN007	B-1	D807	B-5	IC501	D-2
CN009	D-2			IC601	D-4
CN010	C-6	IC001	C-2	IC701	B-5
CN012	A-6	IC003	C-3	IC904	D-1
		IC004	C-3		

MB-85 (SIGNAL PROCESS/SERVO) PRINTED WIRING BOARD (SIDE B)

— Ref. No. MB-85 Board; 4,000 Series —





For printed wiring boards

There are few cases that the part printed on this diagram isn't mounted in this model.

MB-85 BOARD (SIDE B)

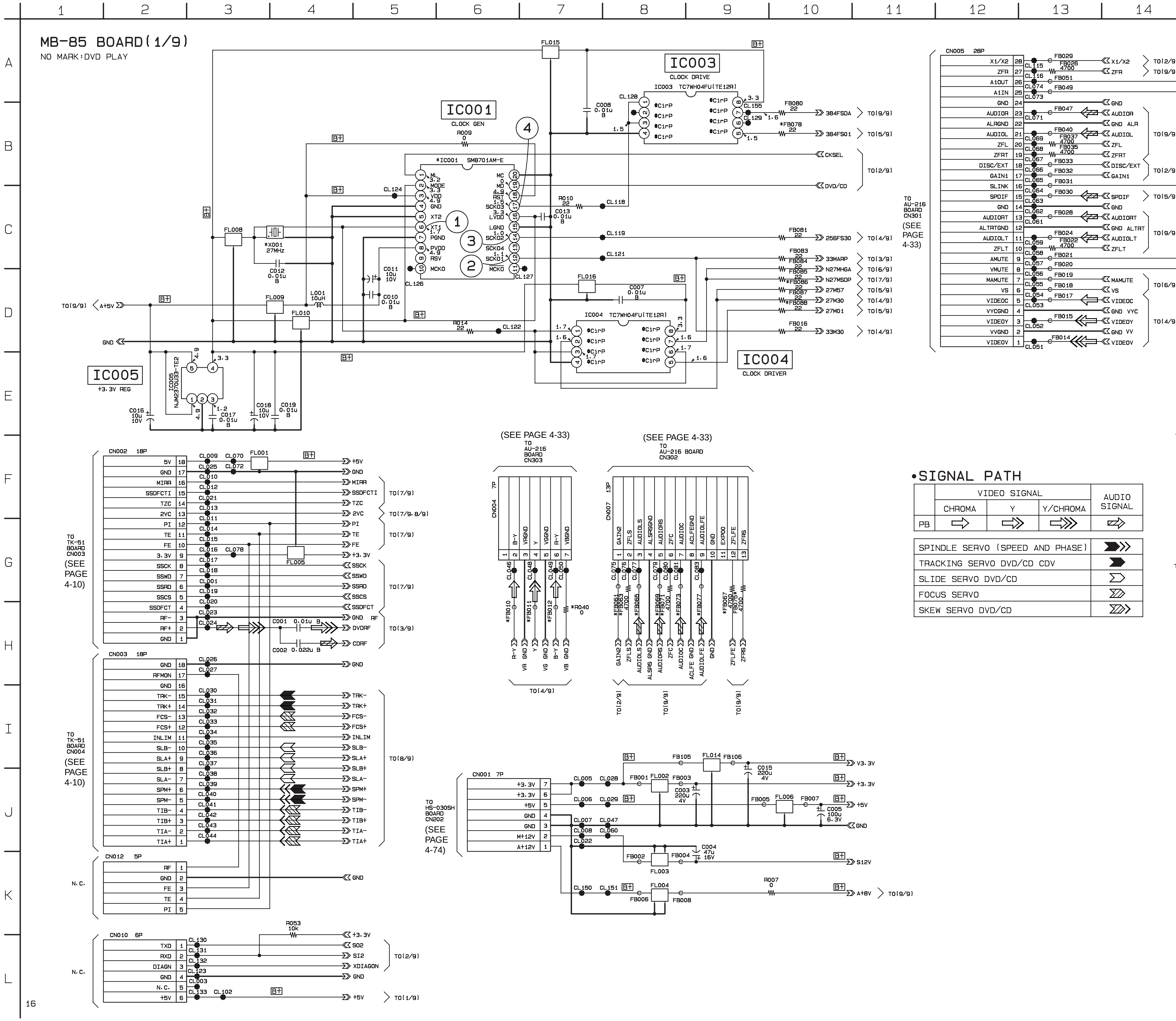
D701	B-2	IC403	B-5	IC906	C-6
D806	A-2	IC404	A-6	IC907	B-6
		IC502	A-6		
IC005	D-5	IC602	C-3		
IC201	D-2	IC702	C-1		
IC203	D-3	IC801	A-2		
IC204	C-1	IC802	A-1		
IC207	D-1	IC803	B-1		
IC304	A-3	IC902	D-6		
IC402	B-5	IC905	C-6		

MB-85 (INTER FACE) SCHEMATIC DIAGRAM

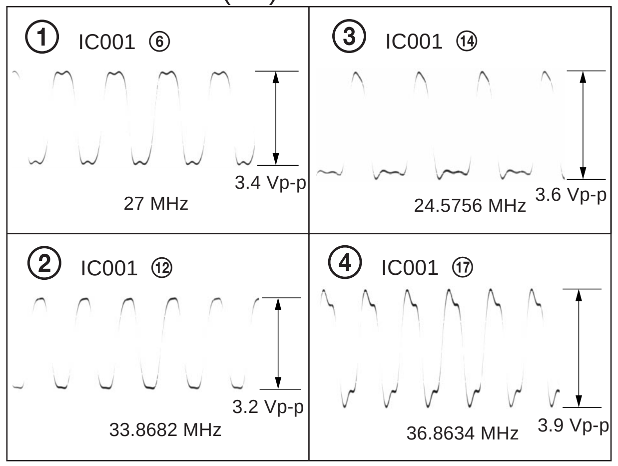
— Ref. No. MB-85 Board; 4,000 Series —

For schematic diagram

- Refer to page 4-11 for printed wiring board.

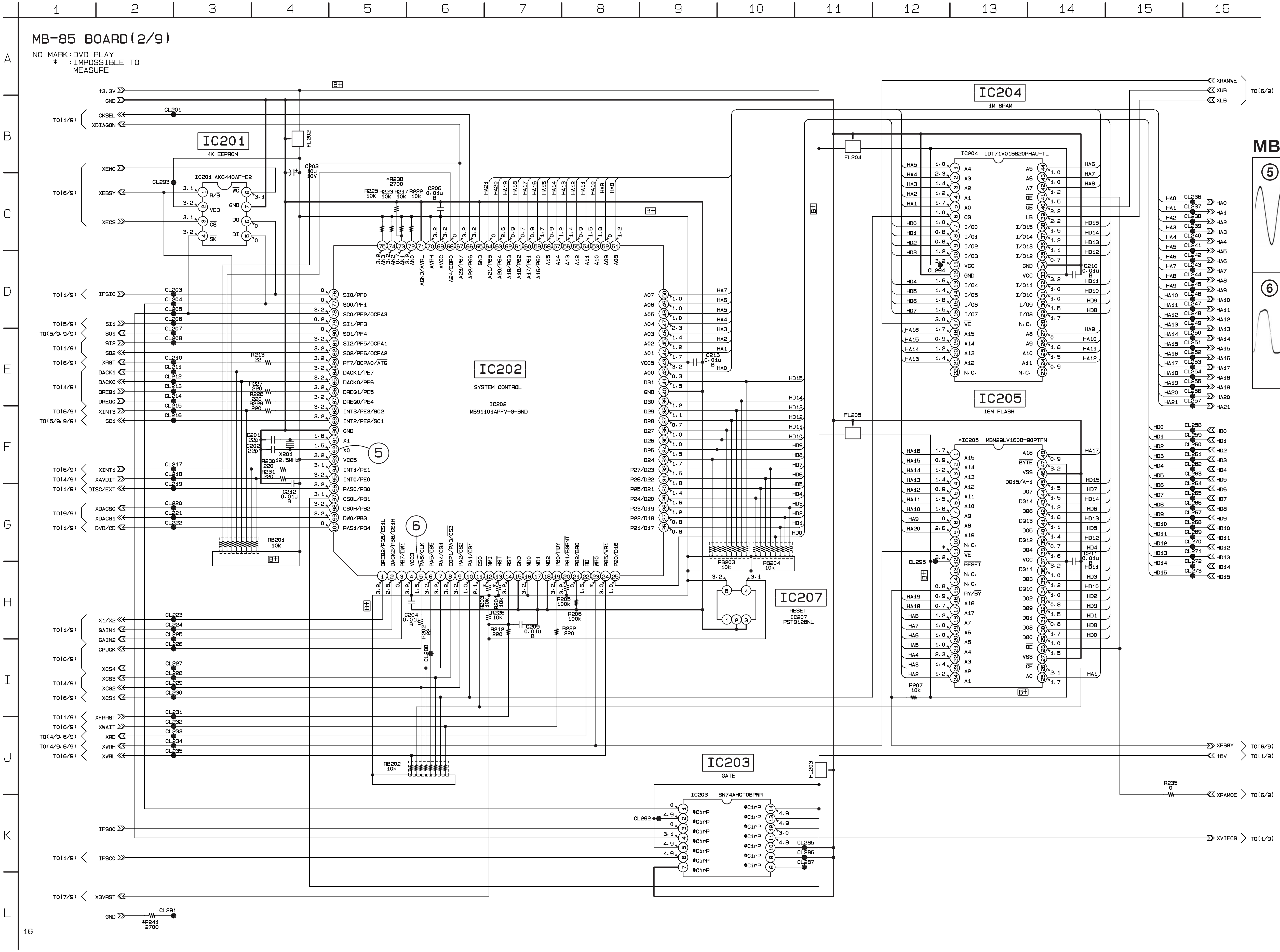


MB-85 BOARD (1/9)

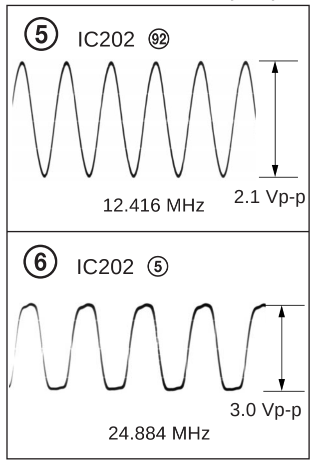


MB-85 (SYSTEM CONTROL) SCHEMATIC DIAGRAM
— Ref. No. MB-85 Board; 4,000 Series —

For schematic diagram
- Refer to page 4-11 for printed wiring board.



MB-85 BOARD (2/9)



MB-85 (ARP) SCHEMATIC DIAGRAM

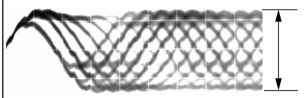
— Ref. No. MB-85 Board; 4,000 Series —

For schematic diagram

- Refer to page 4-11 for printed wiring board.

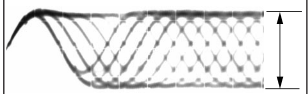
MB-85 BOARD (3/9)

⑦ IC303 ⑰ (DVD play)

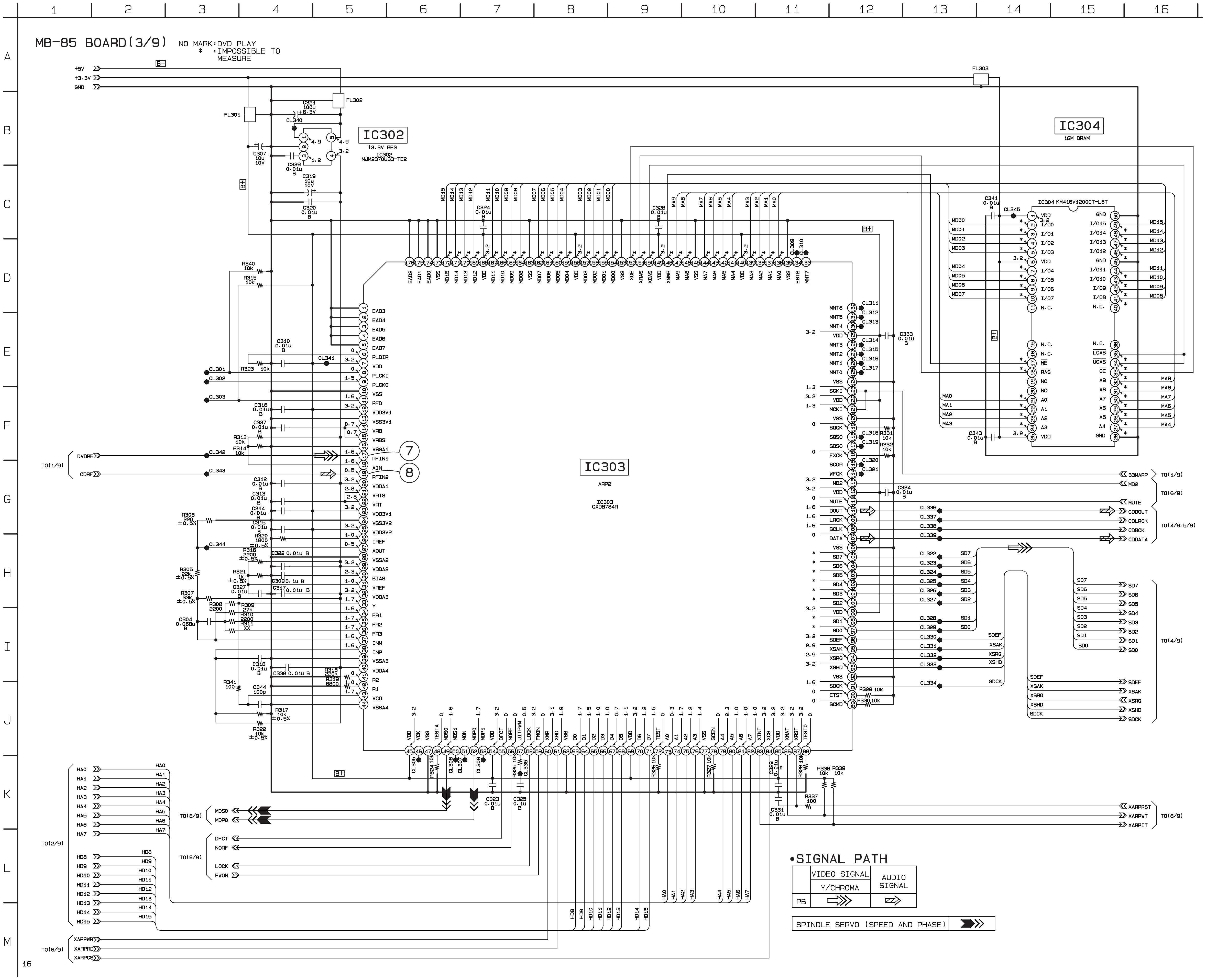


50 nsec/div 1.4 Vp-p
0.5 V/div

⑧ IC303 ⑲ (CD play)



0.2 μsec/div 1.4 Vp-p
0.5 V/div

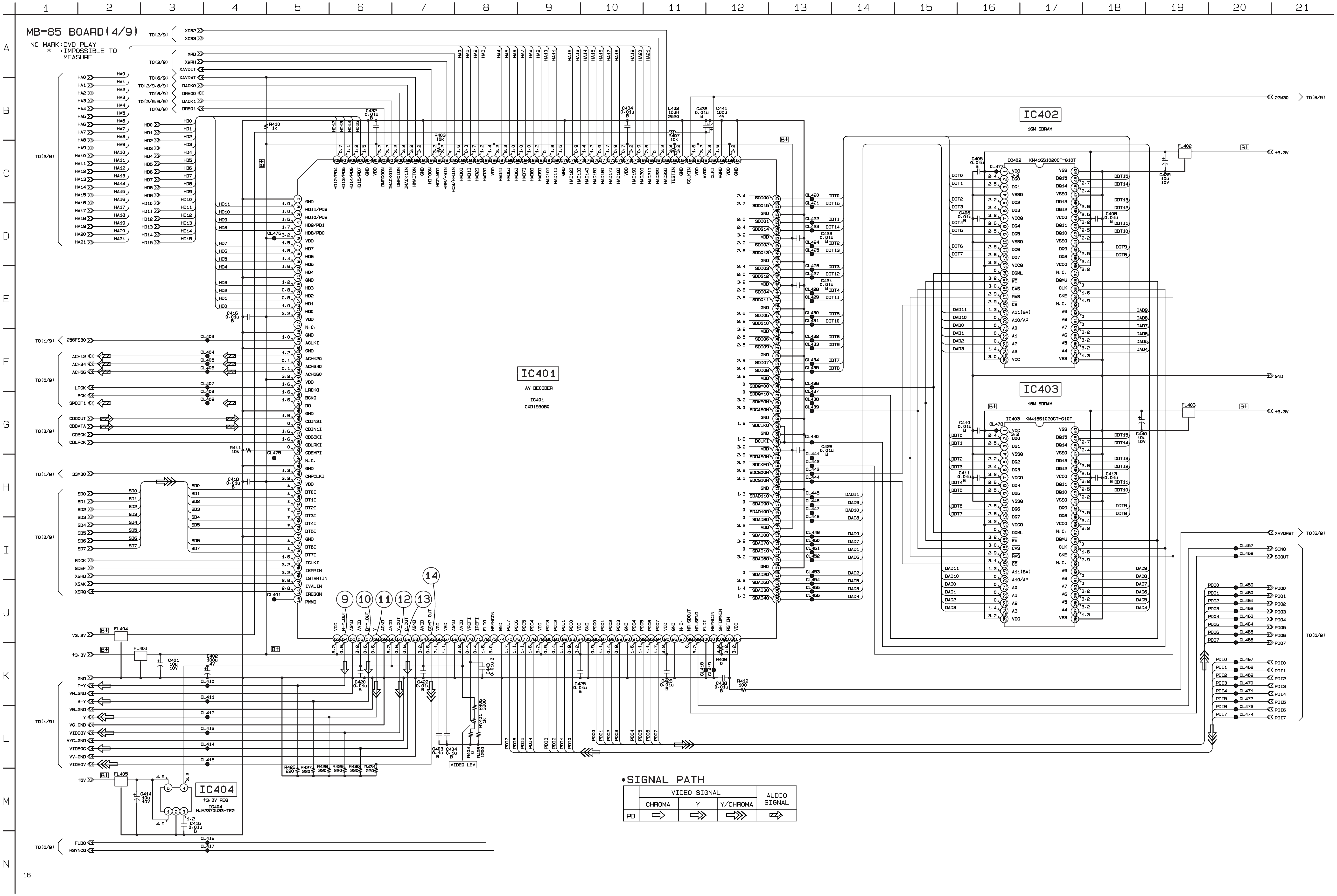


MB-85 (AV DECODER) SCHEMATIC DIAGRAM

— Ref. No. MB-85 Board; 4,000 Series —

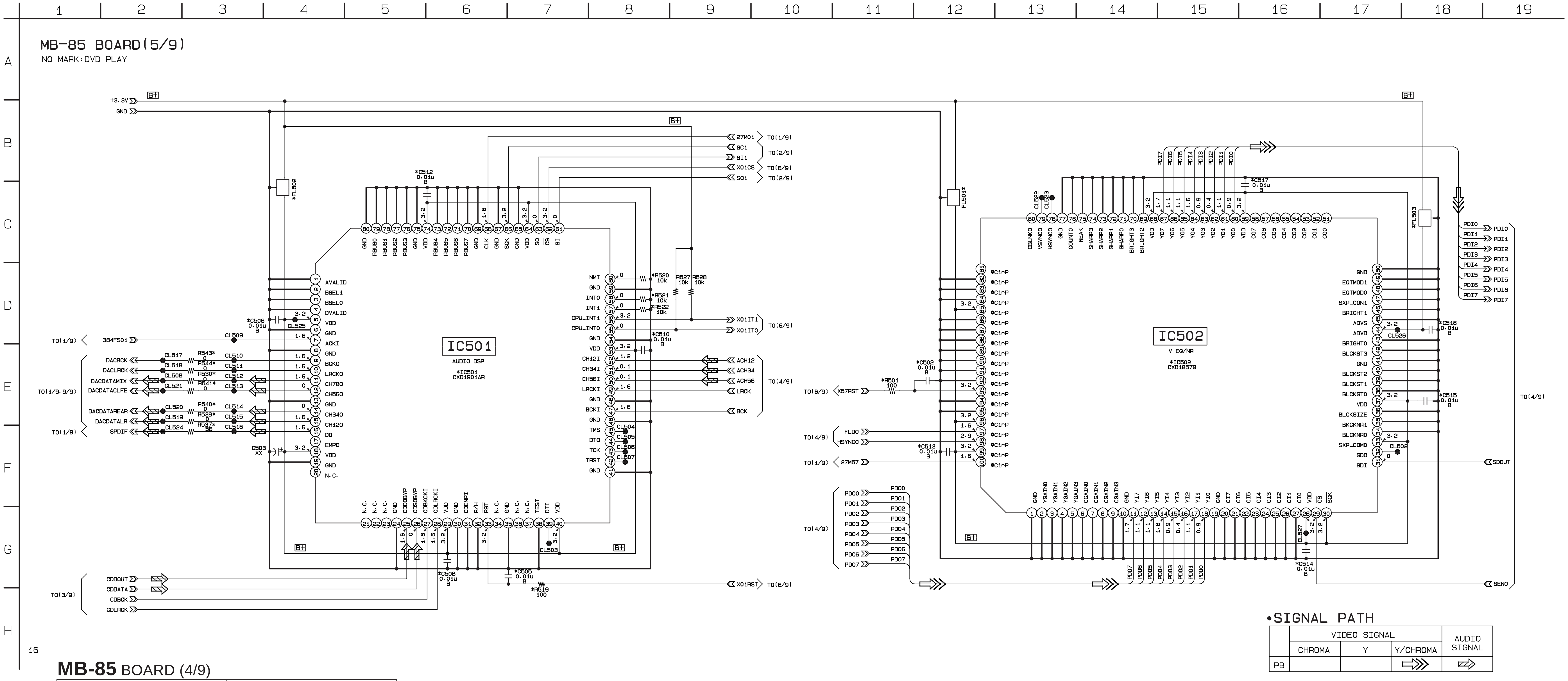
For schematic diagram

- Refer to page 4-11 for printed wiring board.
- Refer to page 4-23 for waveforms.

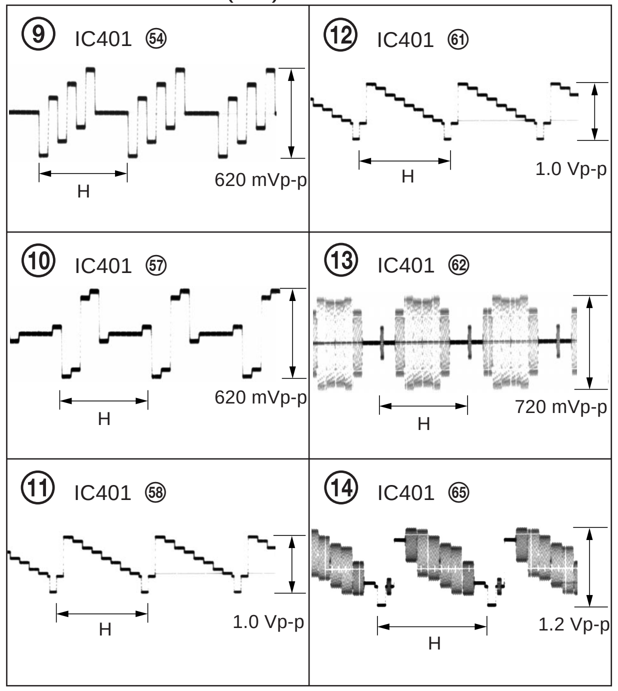


MB-85 (AUDIO DSP, V EQ/NR) SCHEMATIC DIAGRAM
— Ref. No. MB-85 Board; 4,000 Series —

For schematic diagram
- Refer to page 4-11 for printed wiring board.



MB-85 BOARD (4/9)

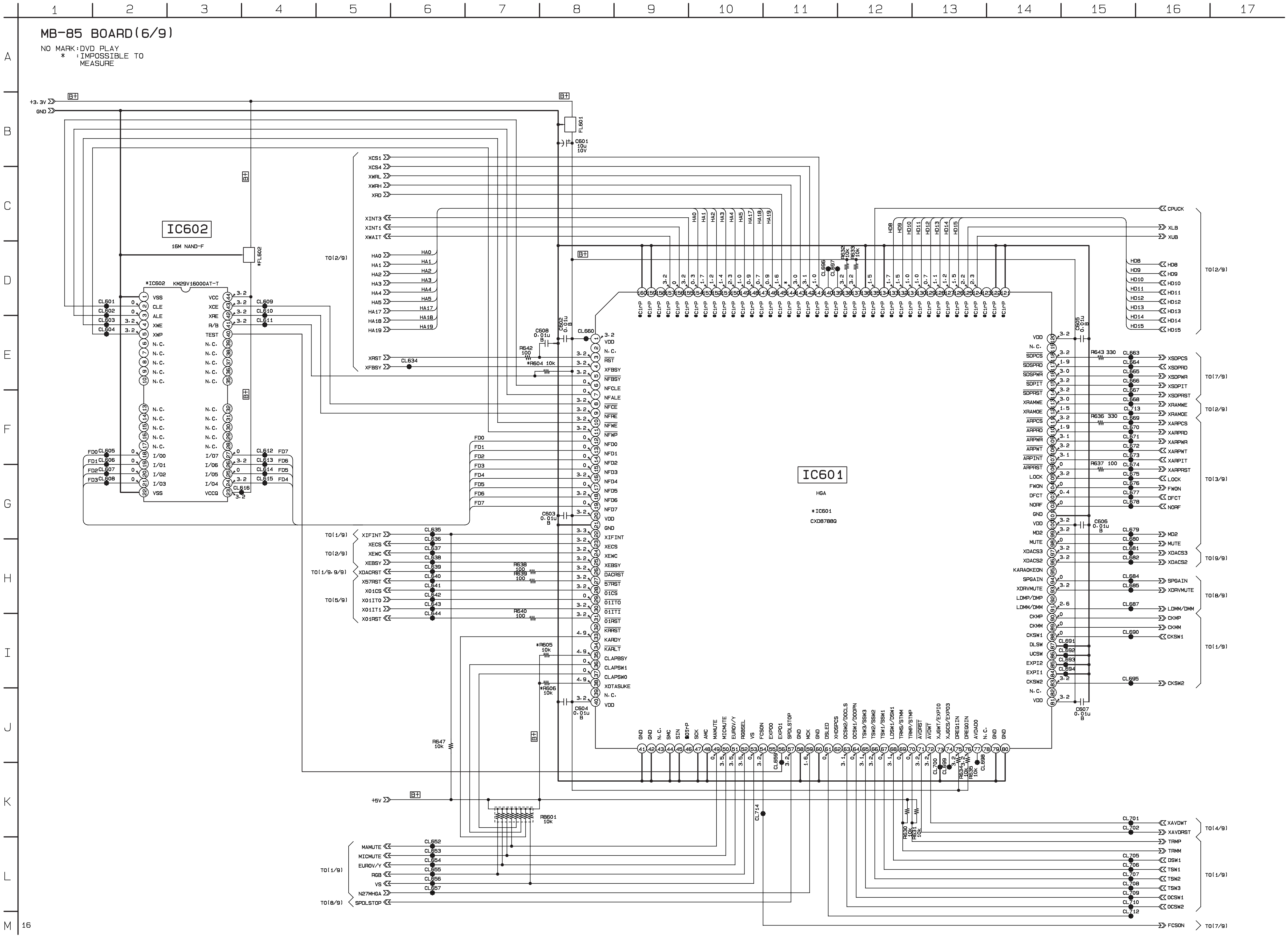


MB-85 (HGA) SCHEMATIC DIAGRAM

— Ref. No. MB-85 Board; 4,000 Series —

For schematic diagram

- Refer to page 4-11 for printed wiring board.

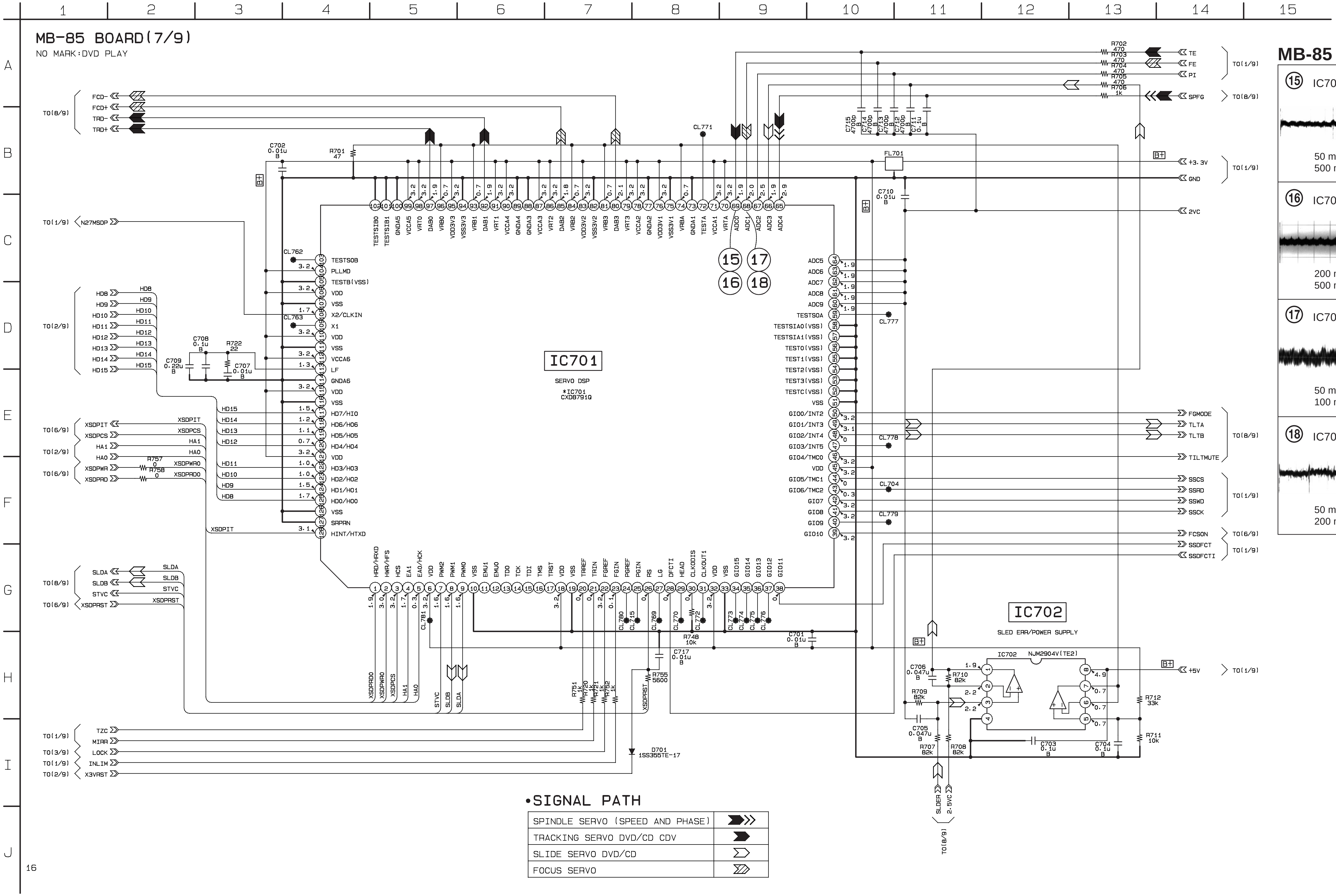


HGA

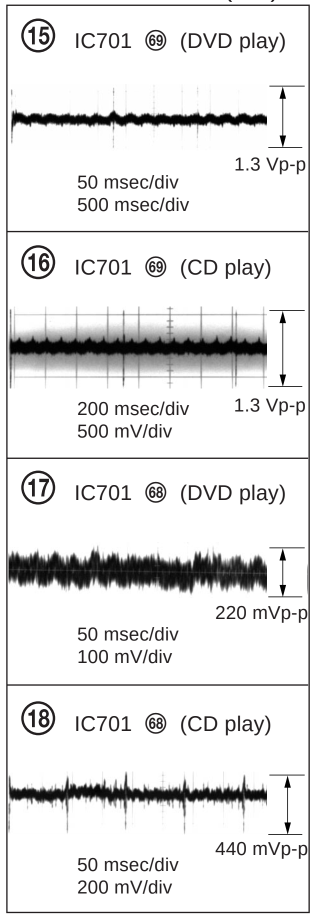
MB-85 (6/9)

MB-85 (SERVO DSP) SCHEMATIC DIAGRAM
— Ref. No. MB-85 Board; 4,000 Series —

For schematic diagram
• Refer to page 4-11 for printed wiring board.

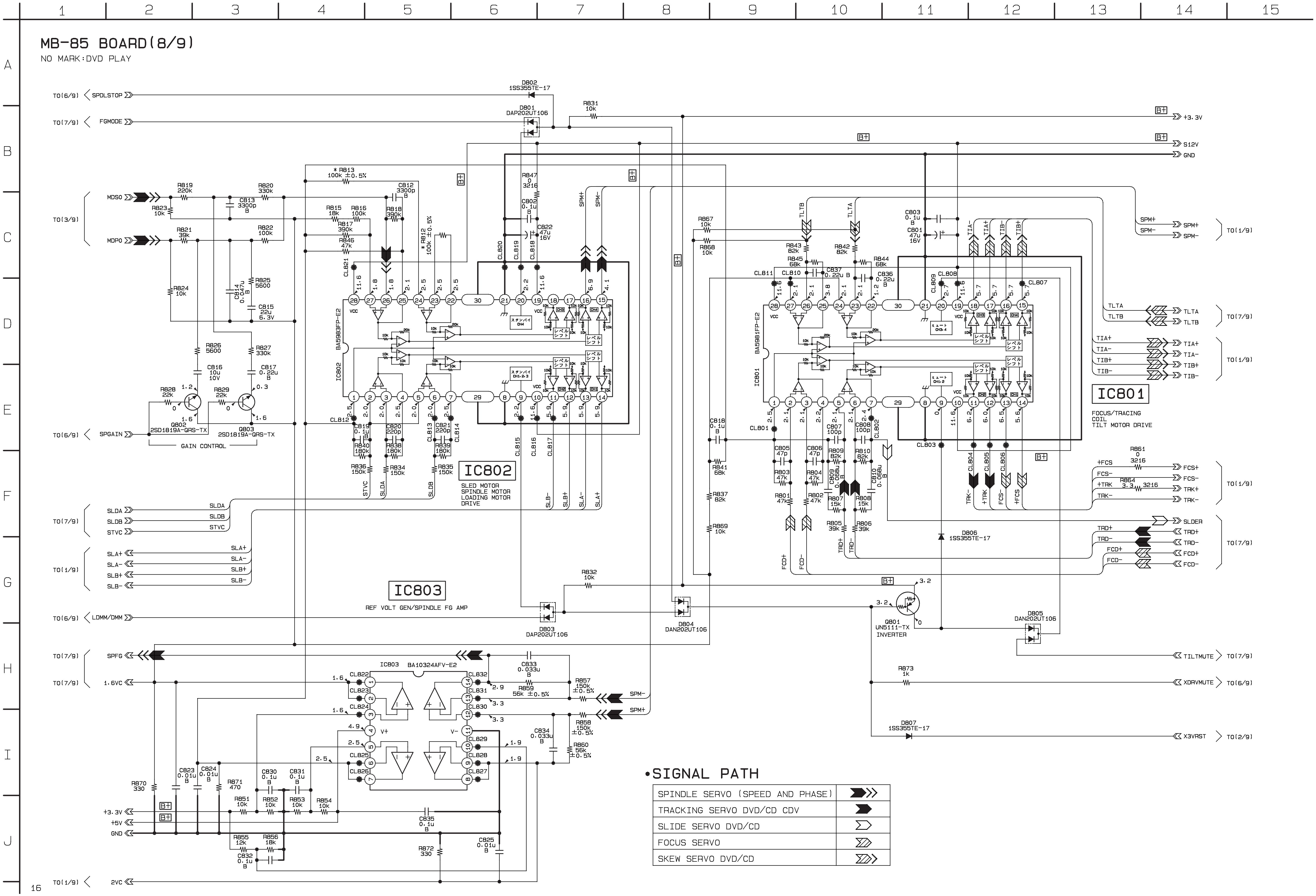


MB-85 BOARD (7/9)



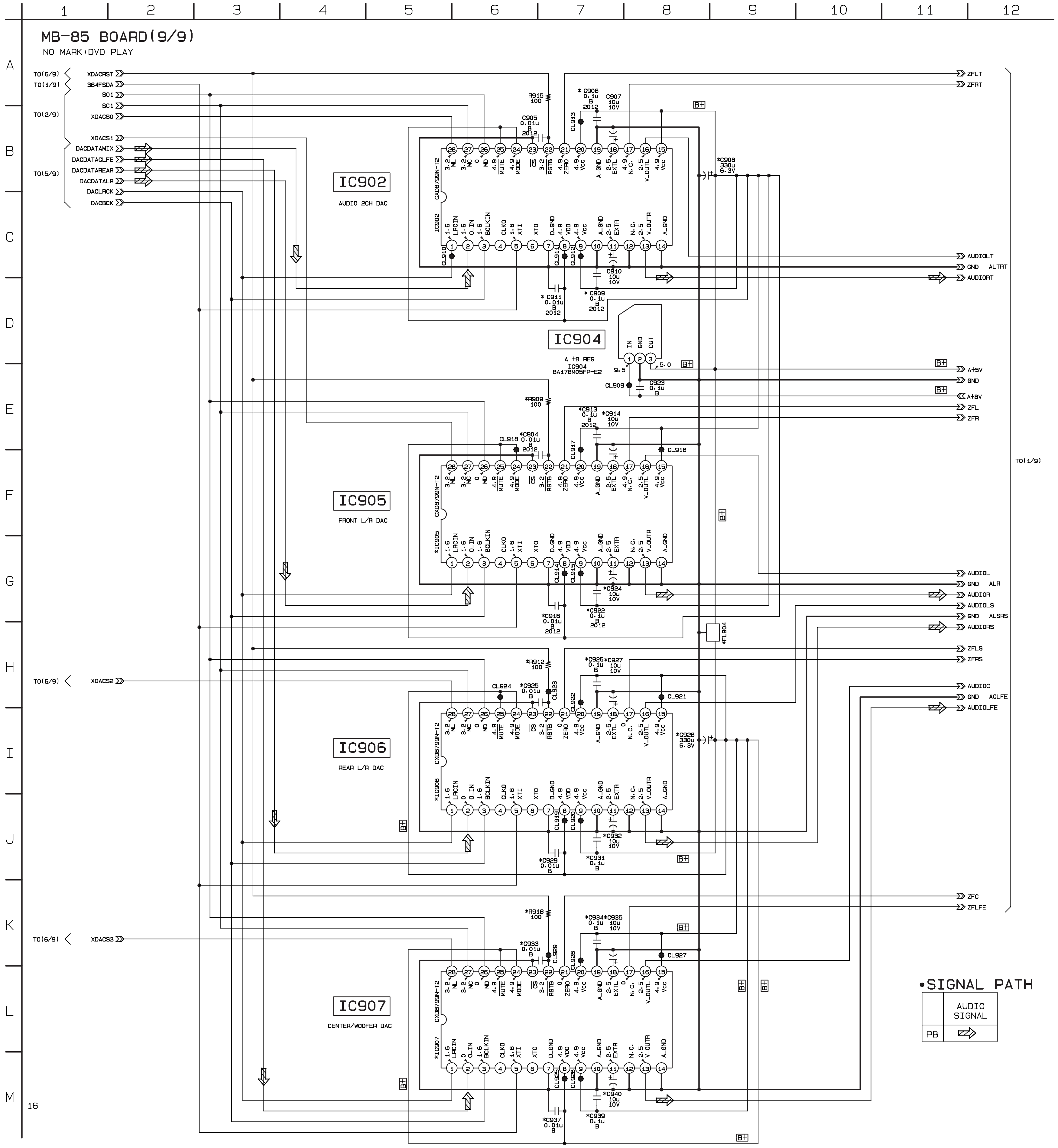
MB-85 (DRIVE) SCHEMATIC DIAGRAM
— Ref. No. MB-85 Board; 4,000 Series —

For schematic diagram
- Refer to page 4-11 for printed wiring board.



MB-85 (DAC) SCHEMATIC DIAGRAM
— Ref. No. MB-85 Board; 4,000 Series —

For schematic diagram
• Refer to page 4-11 for printed wiring board.

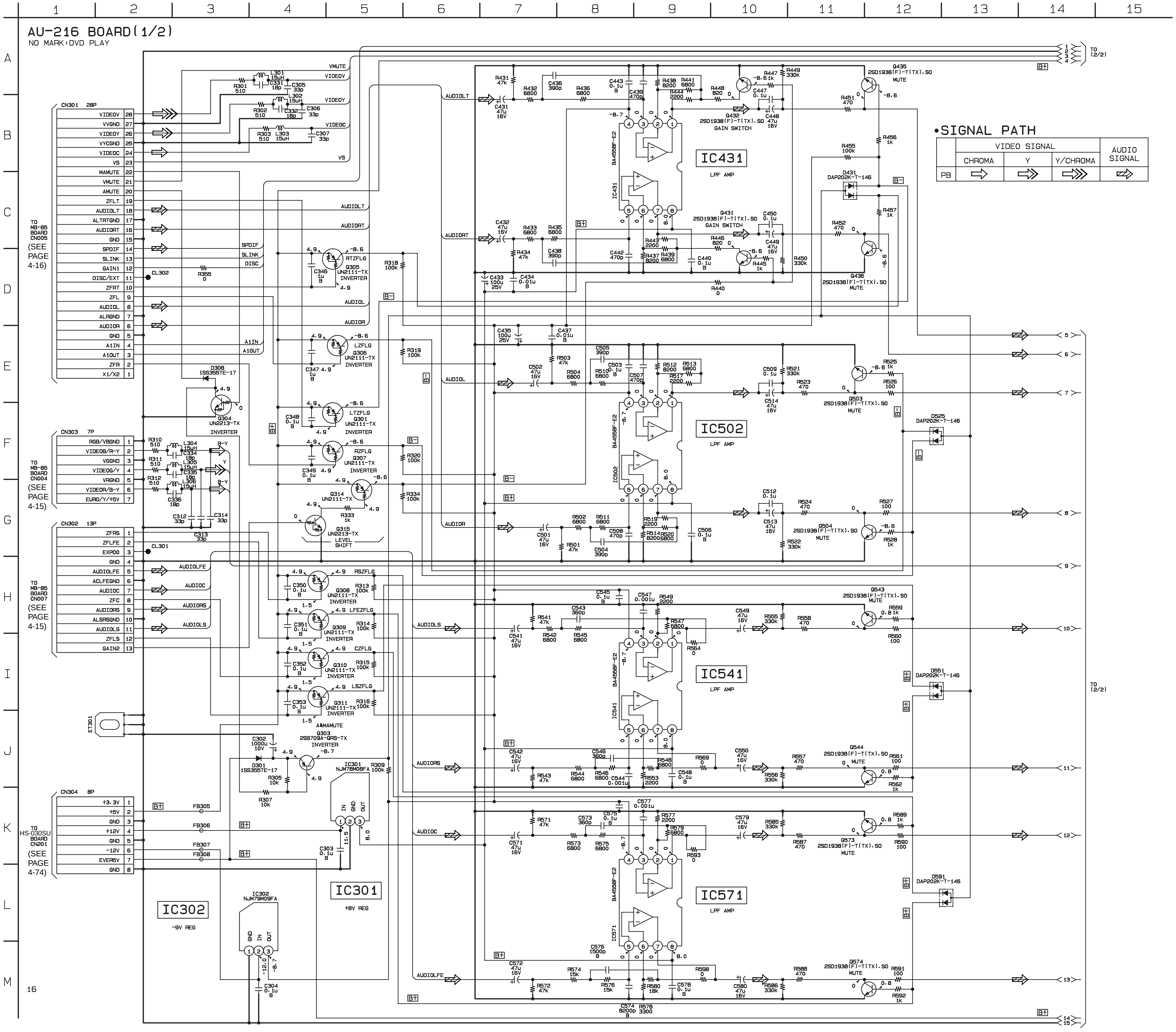


AU-216 (LPF AMP) SCHEMATIC DIAGRAM

— Ref. No. AU-216 Board; 1,000 Series —

For schematic diagram

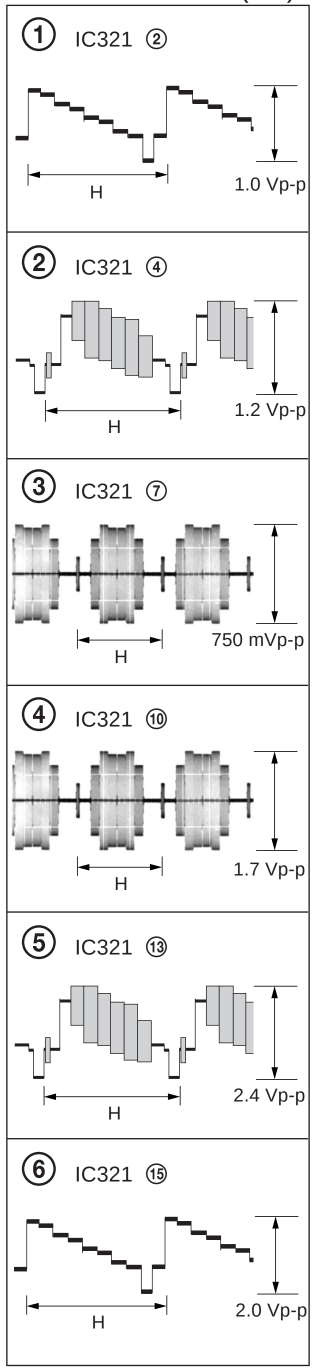
• Refer to page 4-37 for printed wiring board.

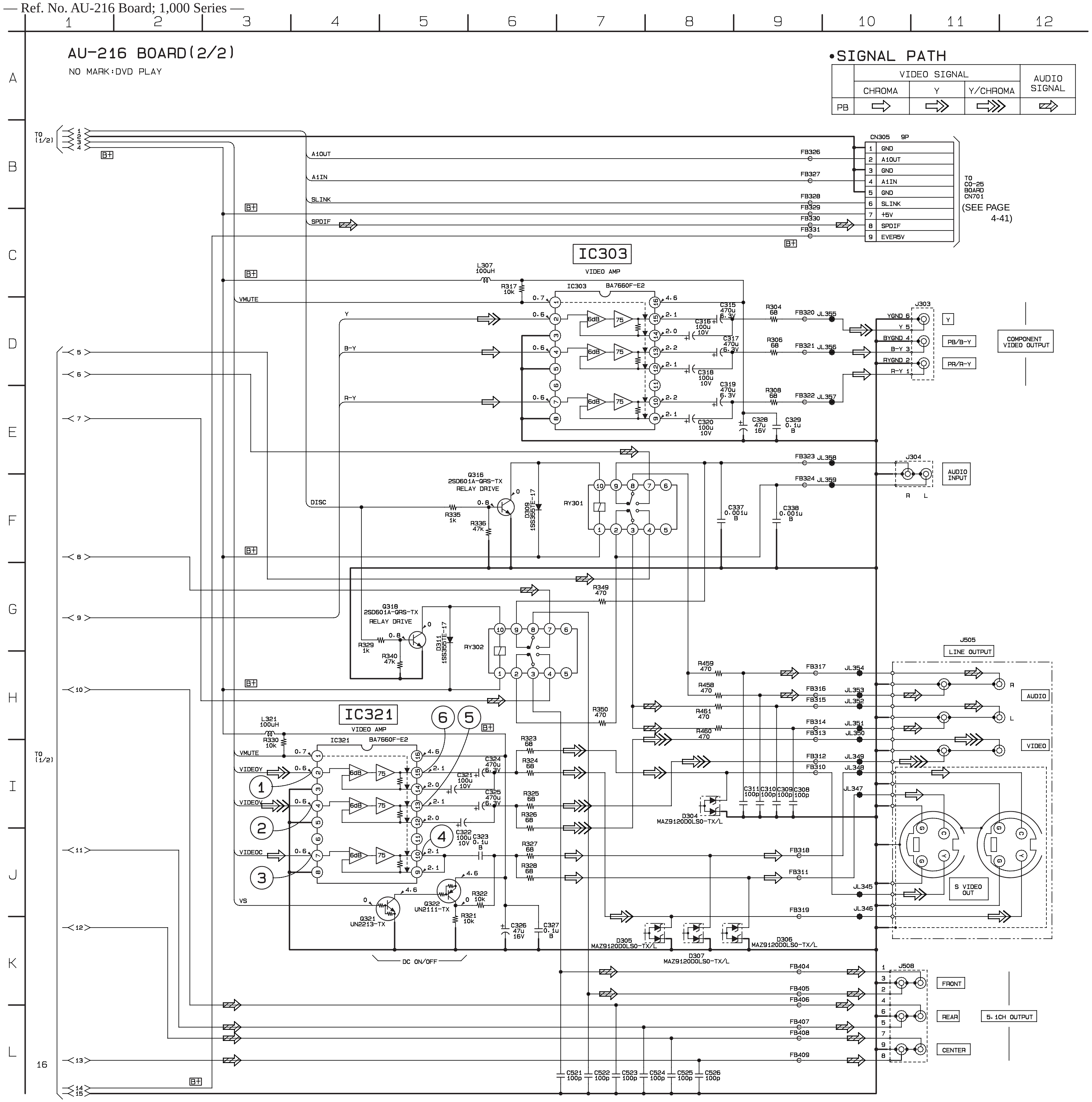


AU-216 (VIDEO AMP) SCHEMATIC DIAGRAM

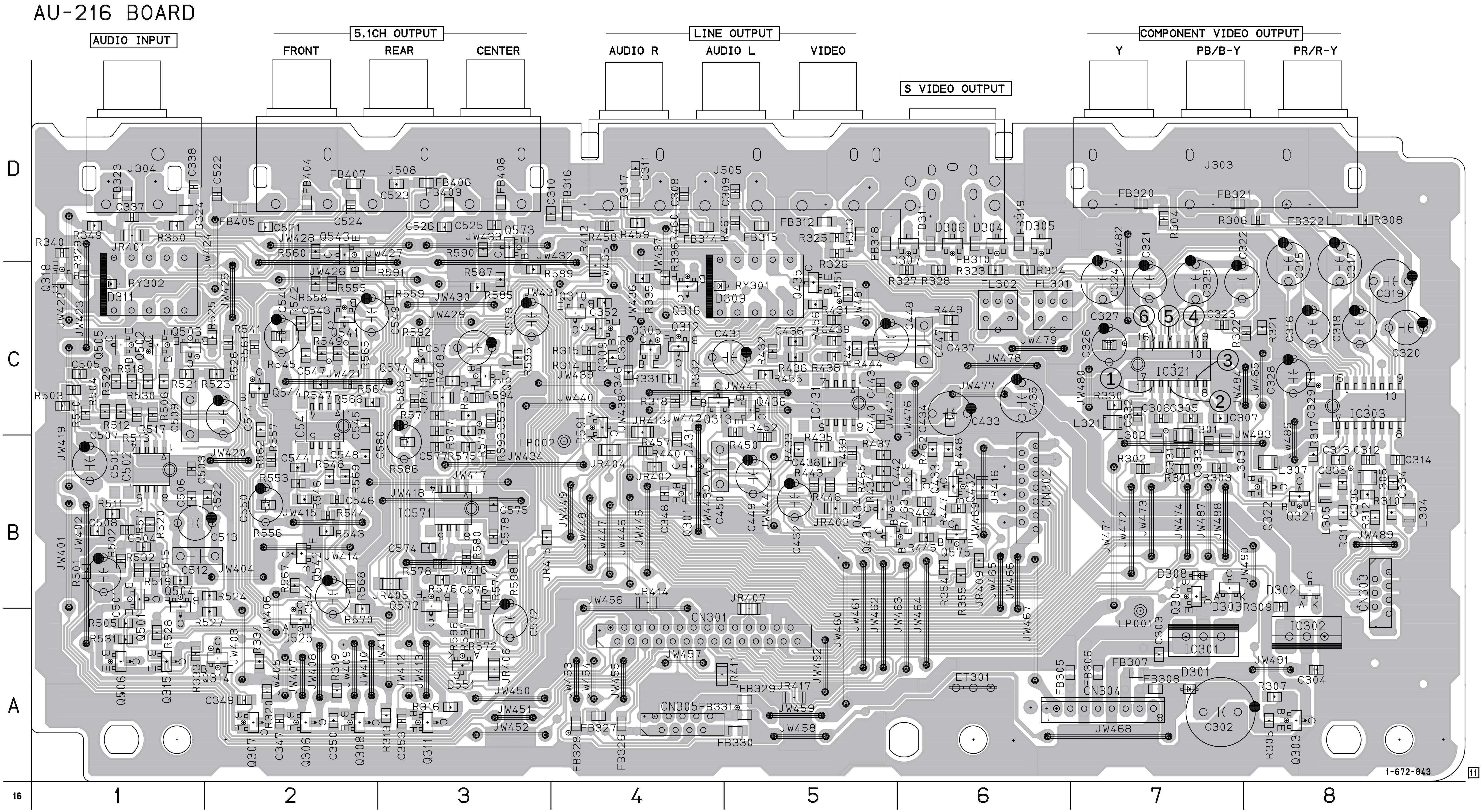
— Ref. No. AU-216 Board; 1,000 Series —

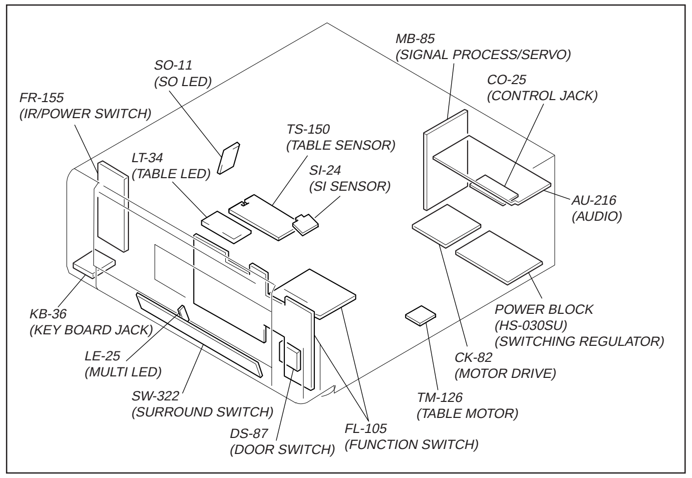
AU-216 BOARD (2/2)





AU-216 (AUDIO) PRINTED WIRING BOARD
— Ref. No. AU-216 Board; 1,000 Series —





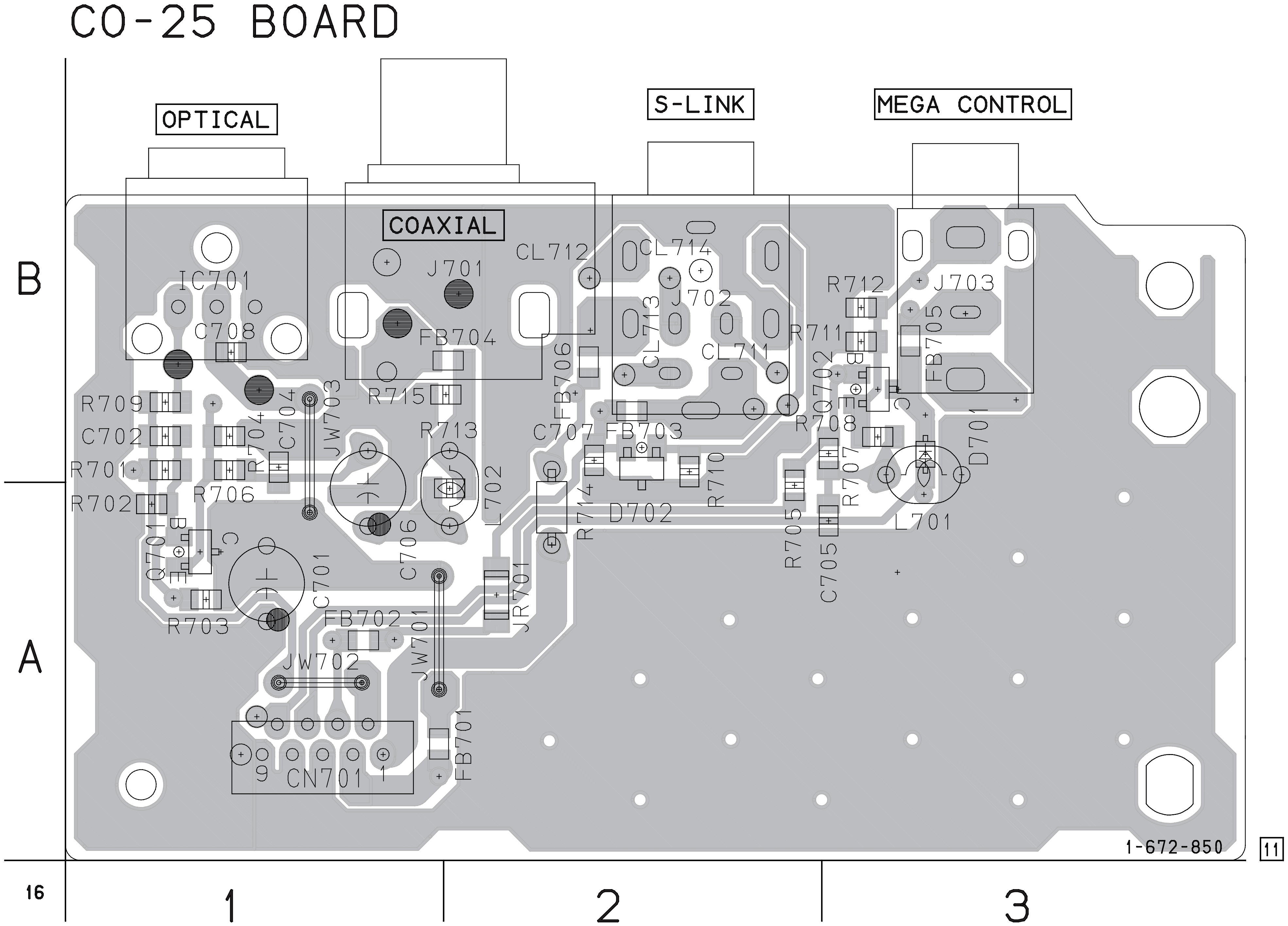
For printed wiring boards

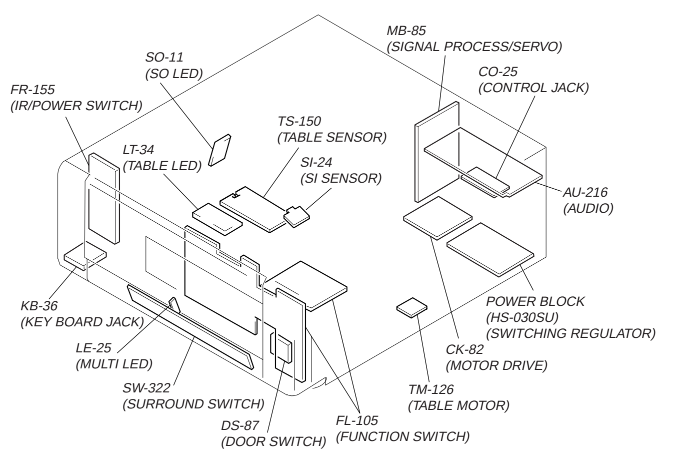
There are few cases that the part printed on this diagram isn't mounted in this model.

AU-216 BOARD

CN301	A-4	D309	C-5	IC502	B-1	Q310	C-4	Q435	C-5
CN302	B-6	D311	C-1	IC541	B-2	Q311	A-3	Q436	C-5
CN303	A-8	D431	B-4	IC571	B-3	Q314	A-2	Q503	C-1
CN304	A-7	D525	A-2						
CN305	A-4	D551	A-3	Q301	B-4	Q315	A-1	Q504	B-1
				Q303	A-8	Q316	C-4	Q543	D-2
D301	A-7	D591	C-4	Q304	B-7	Q318	C-1	Q544	C-2
D304	D-6			Q305	C-4	Q321	B-8	Q573	D-3
D305	C-6	IC301	A-7	Q306	A-2			Q574	C-3
D306	C-6	IC302	A-8			Q322	B-8		
		IC303	C-8	Q307	A-2	Q431	B-5		
D307	C-5	IC321	C-7	Q308	A-2	Q432	B-6		
D308	B-7	IC431	C-5	Q309	C-4				

CO-25 (CONTROL JACK) PRINTED WIRING BOARD
— Ref. No. CO-25 Board; 1,000 Series —





For printed wiring boards

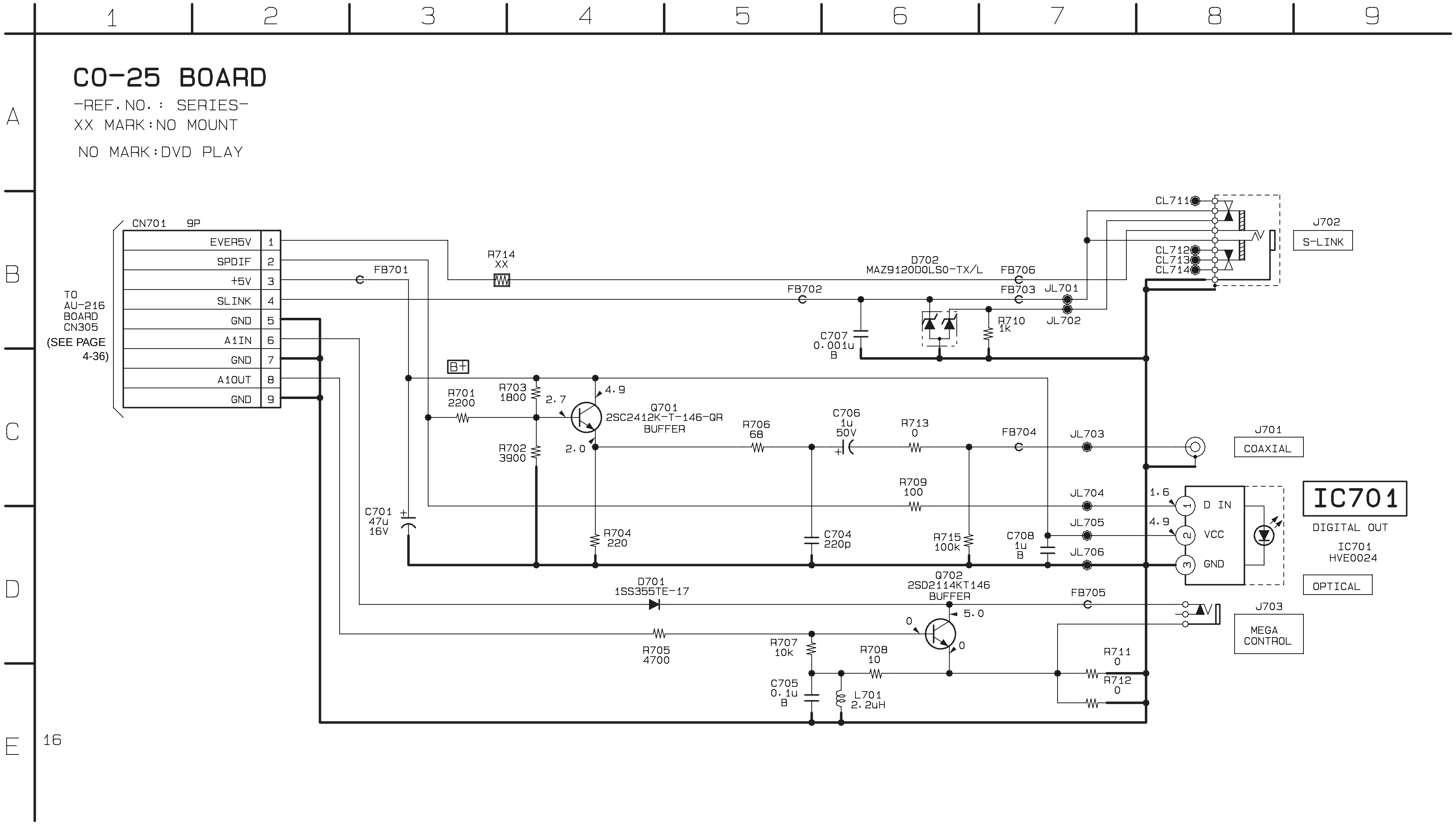
There are few cases that the part printed on this diagram isn't mounted in this model.

CO-25 BOARD

CN701	A-1
D701	B-3
D702	B-2
IC701	B-1
Q701	A-1
Q702	B-3

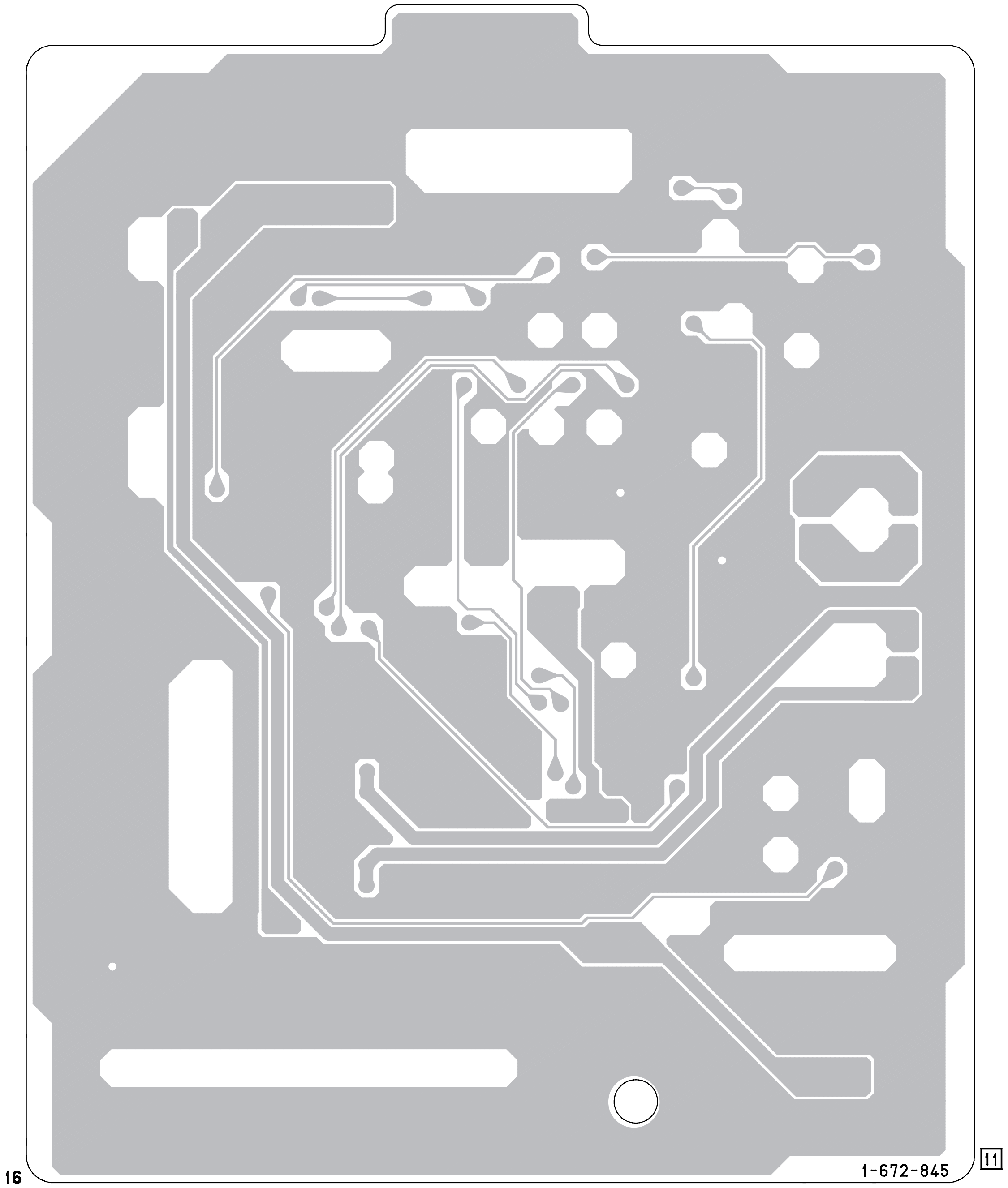
CO-25 (CONTROL JACK) SCHEMATIC DIAGRAM

— Ref. No. CO-25 Board; 1,000 Series —

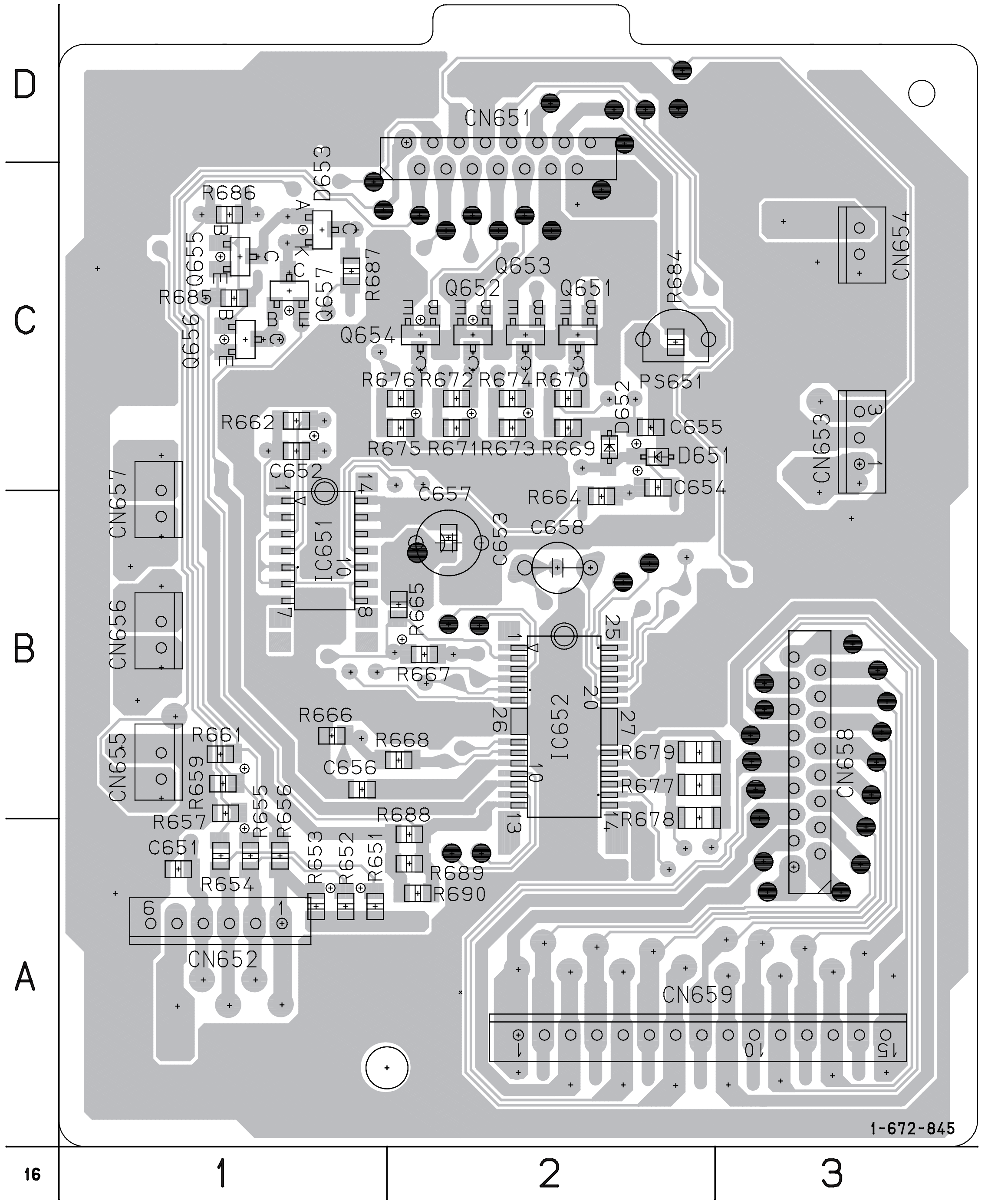


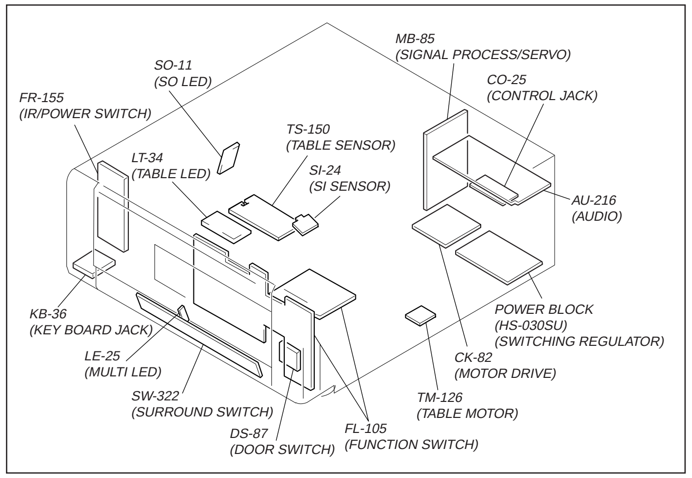
CK-82 (MOTOR DRIVE) PRINTED WIRING BOARD
— Ref. No. CK-82 Board; 2,000 Series —

CK-82 BOARD(SIDE A)



CK-82 BOARD(SIDE B)





For printed wiring boards

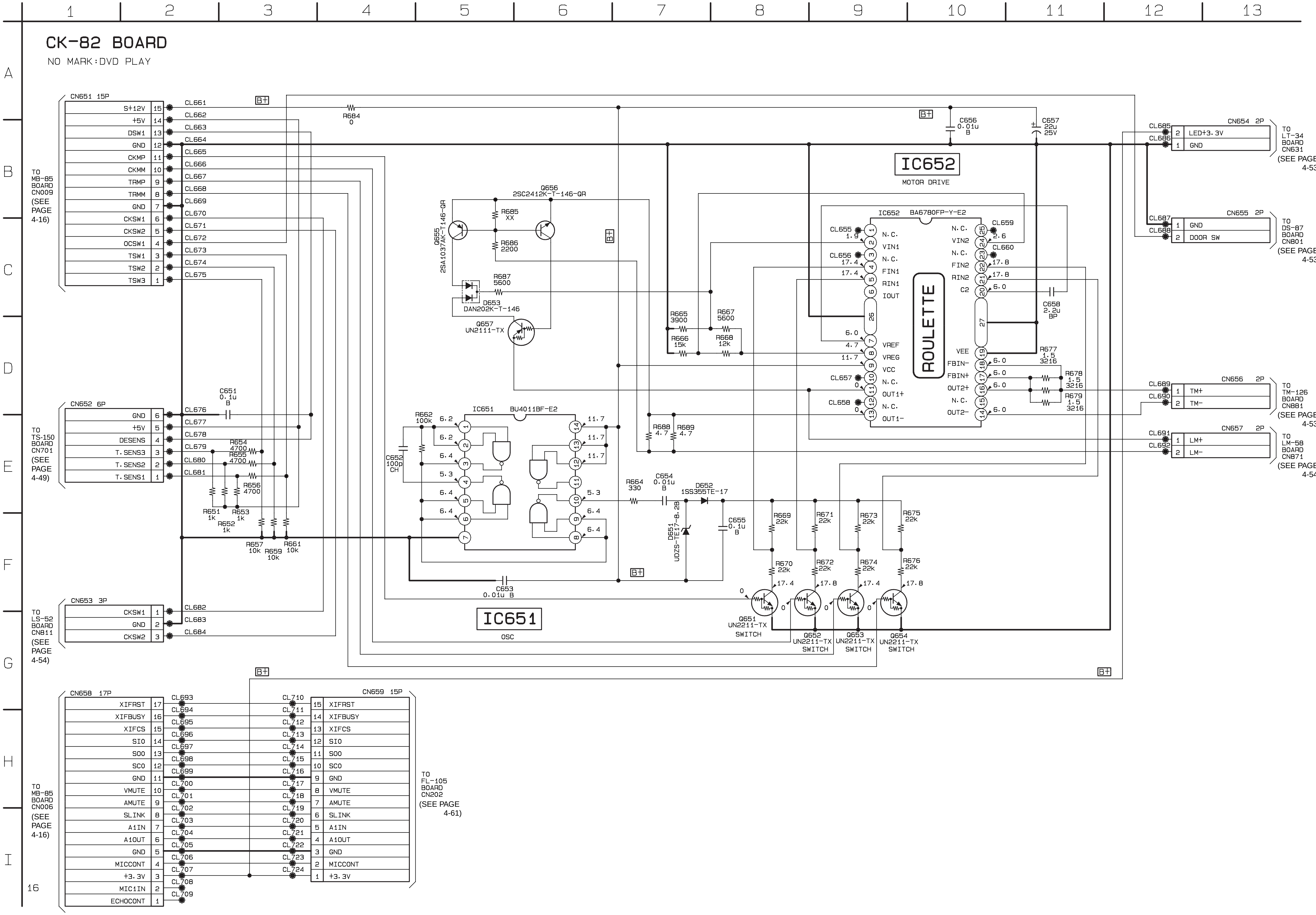
There are few cases that the part printed on this diagram isn't mounted in this model.

CK-82 BOARD

CN651	D-2	D653	C-1
CN652	A-1		
CN653	C-3	IC651	B-1
CN654	C-3	IC652	B-2
CN655	B-1		
		Q651	C-2
CN656	B-1	Q652	C-2
CN657	B-1	Q653	C-2
CN658	B-3	Q654	C-2
CN659	A-3	Q655	C-1
		Q656	C-1
D651	B-2	Q657	C-1
D652	C-2		

CK-82 (MOTOR DRIVE) SCHEMATIC DIAGRAM

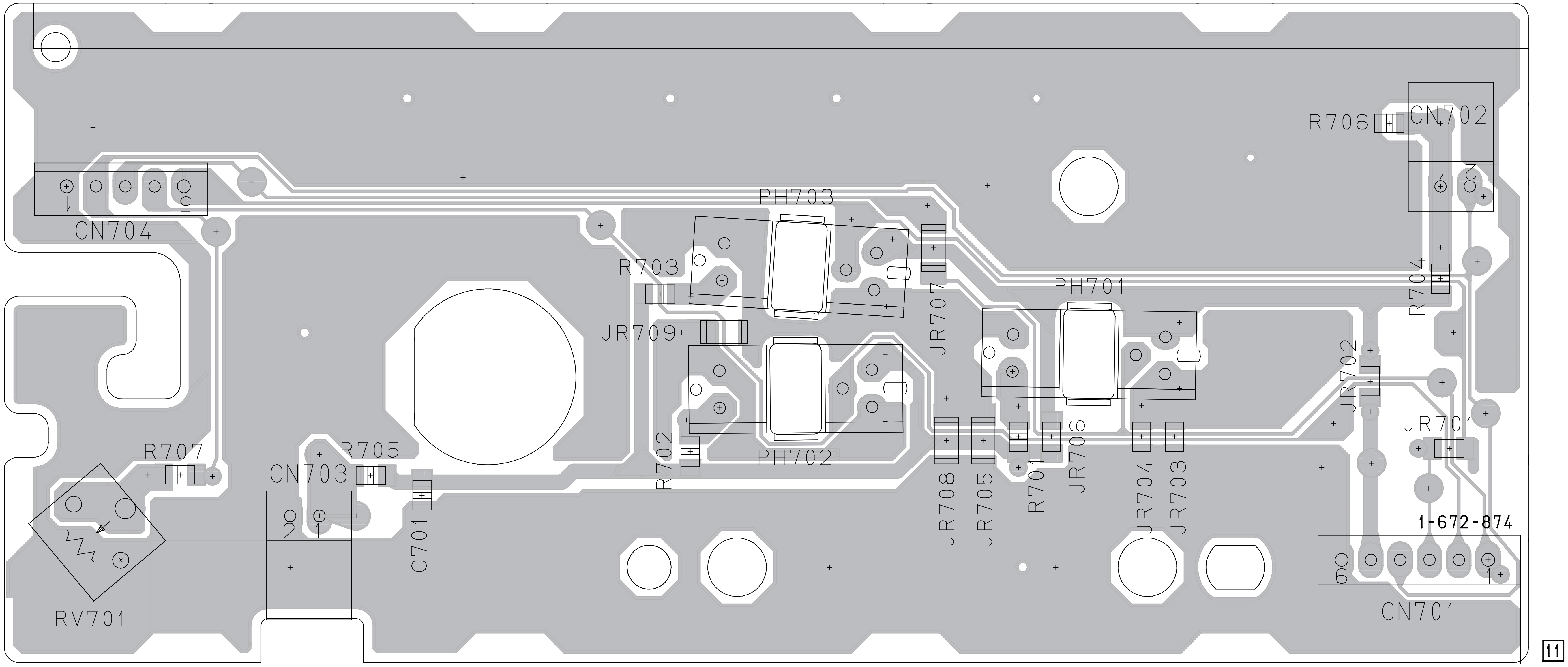
— Ref. No. CK-82 Board; 2,000 Series —



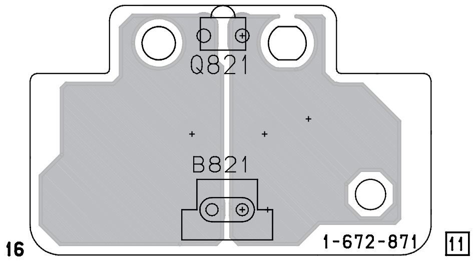
MOTOR DRIVE
CK-82

TS-150 (TABLE SENSOR), SI-24 (SI SENSOR), SO-11 (SO LED) PRINTED WIRING BOARDS
— Ref. No. TS-150, 6,000 SI-24, SO-11 Board; 1,000 Series —

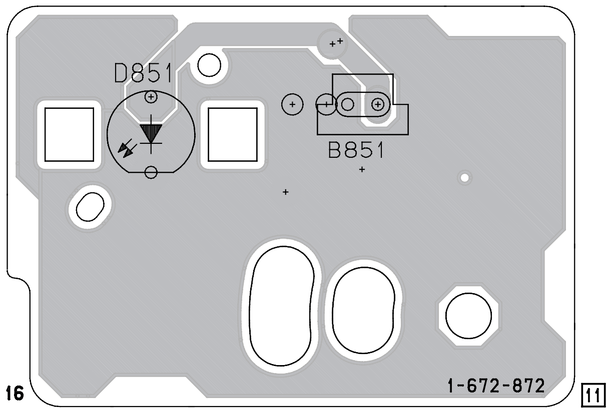
TS-150 BOARD



SI-24 BOARD

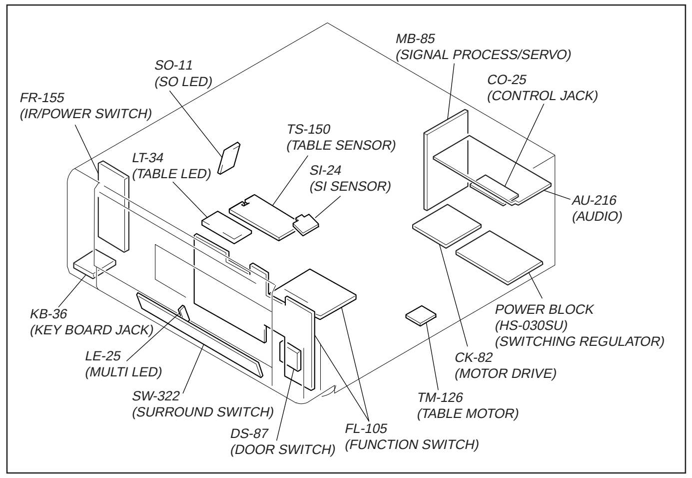


SO-11 BOARD



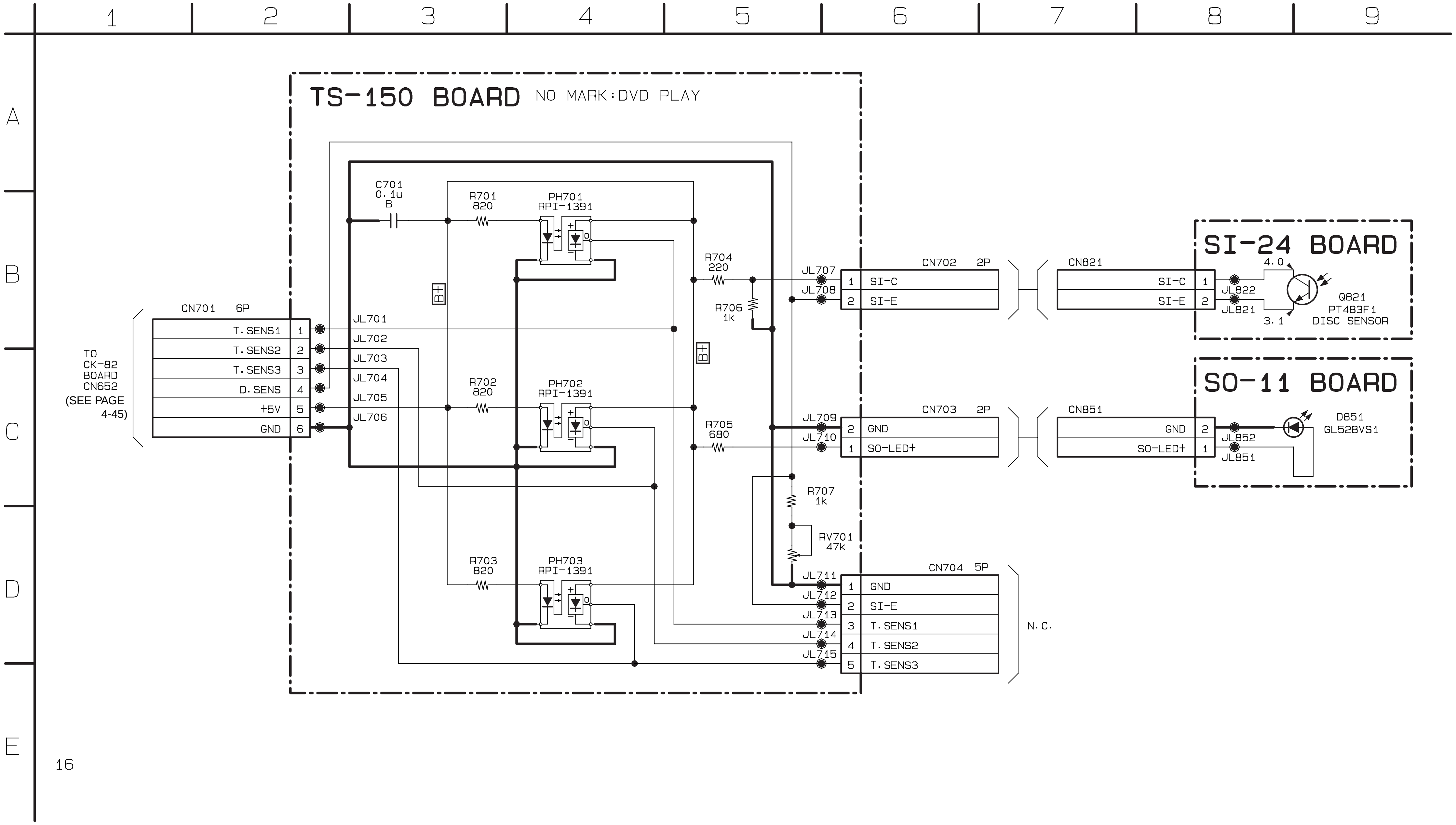
For printed wiring boards

There are few cases that the part printed on this diagram isn't mounted in this model.



TS-150 (TABLE SENSOR), SI-24 (SI SENSOR), SO-11 (SO LED) SCHEMATIC DIAGRAMS

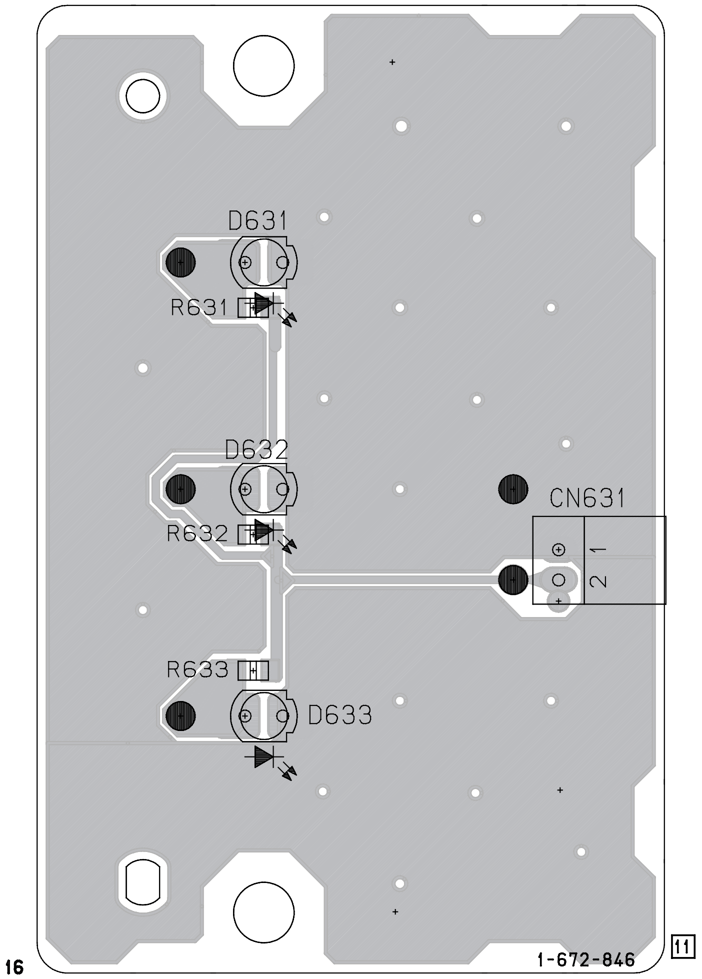
— Ref. No. TS-150, 6,000 SI-24, SO-11 Board; 1,000 Series —



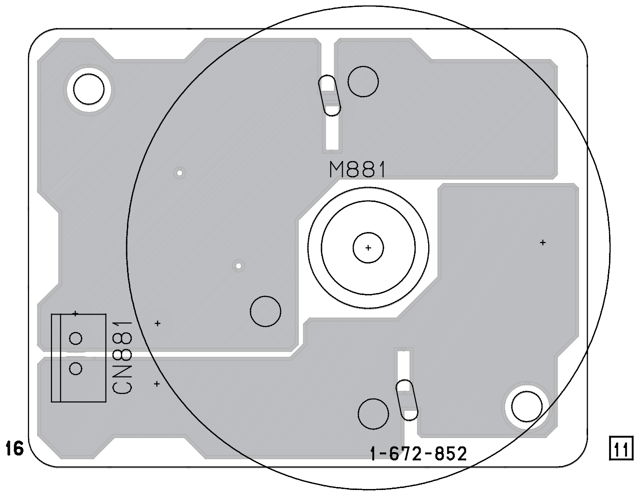
LT-34 (TABLE LED), TM-126 (TABLE MOTOR), DS-87 (DOOR SWITCH), LS-52 (CHACK SENSOR), LM-58 (LOADING MOTOR) PRINTED WIRING BOARDS

— Ref. No. LT-34, TM-126, DS-87, LS-52, LM-58 Board; 1,000 Series —

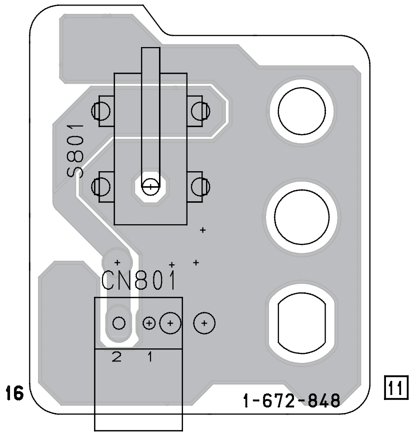
LT-34 BOARD



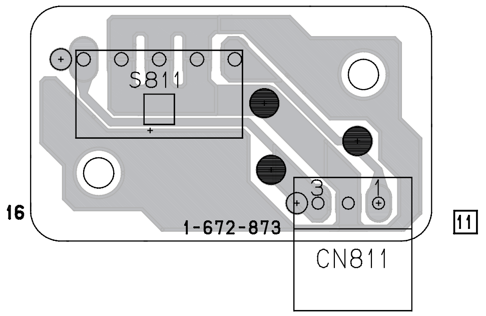
TM-126 BOARD



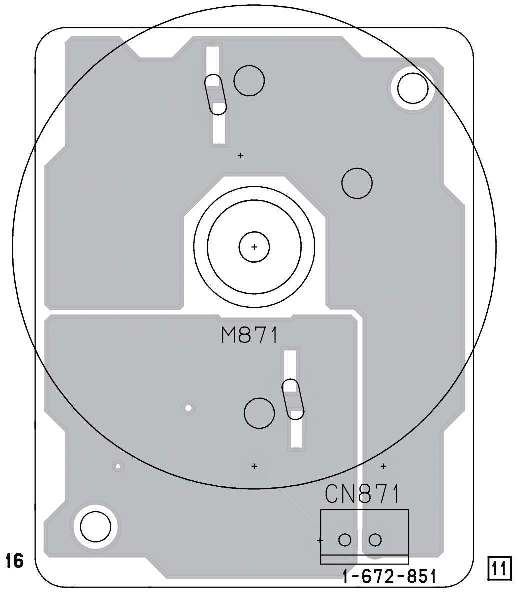
DS-87 BOARD

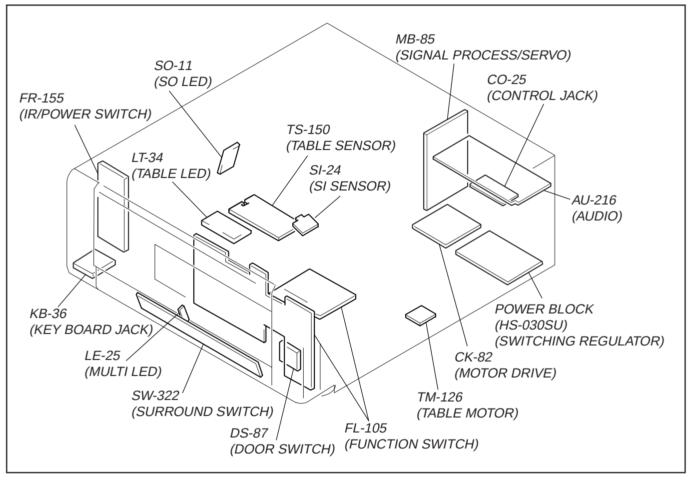


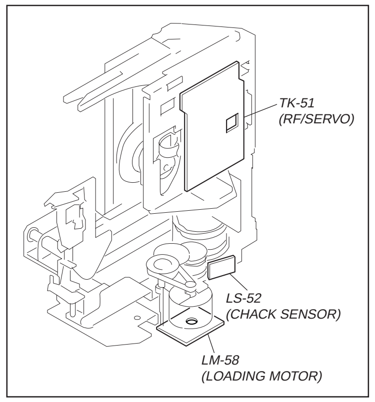
LS-52 BOARD



LM-58 BOARD





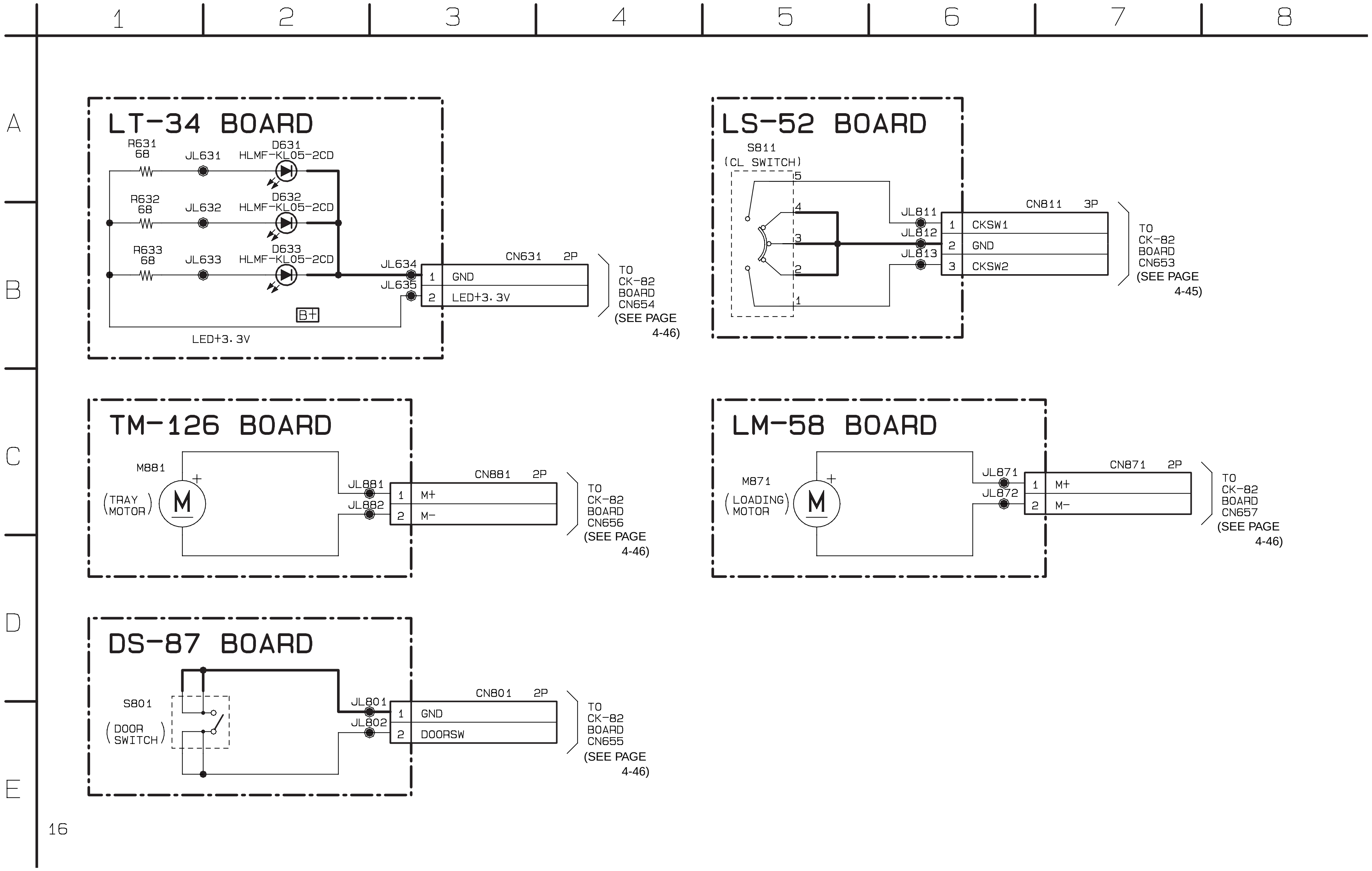


For printed wiring boards

There are few cases that the part printed on this diagram isn’t mounted in this model.

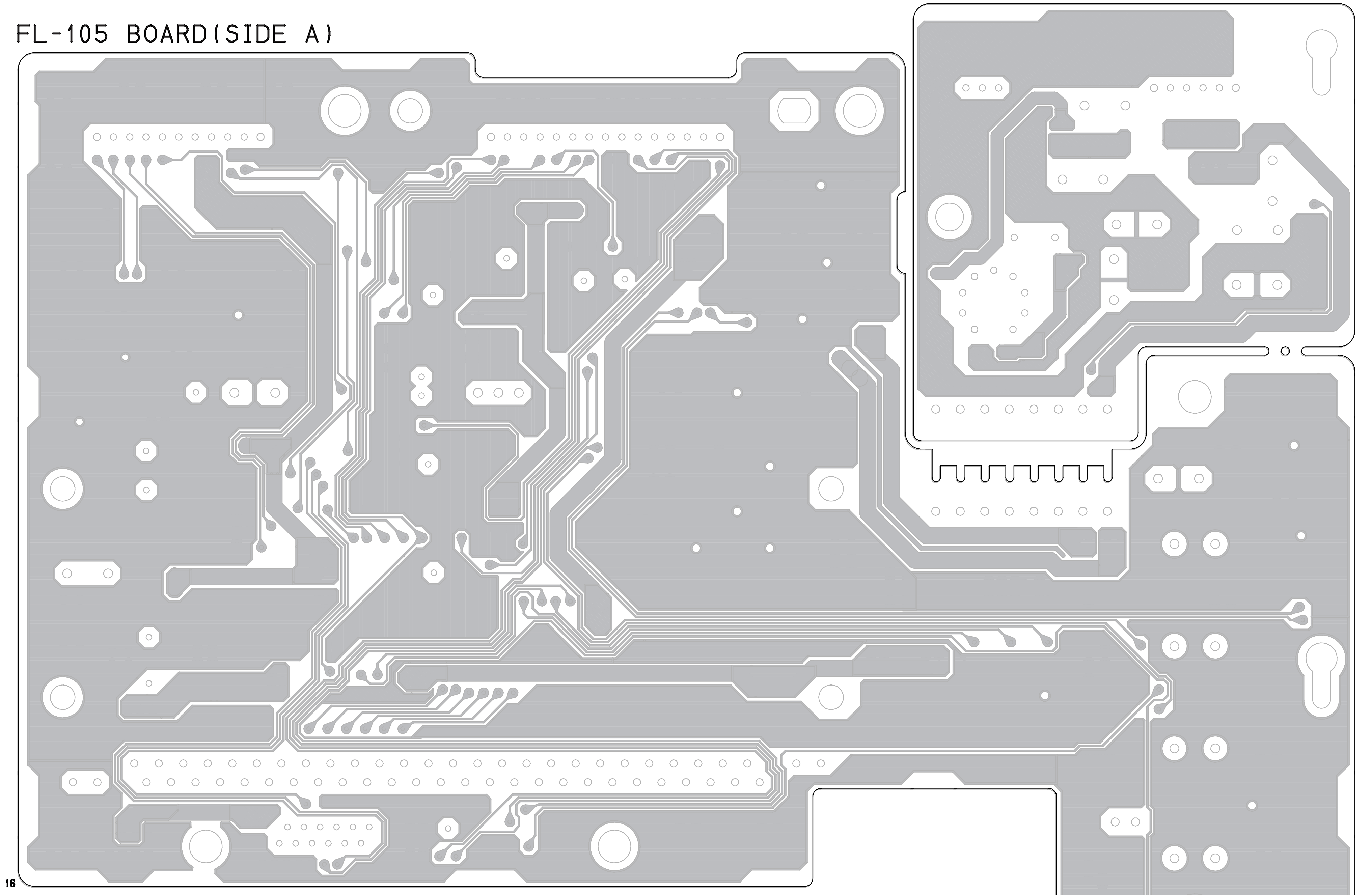
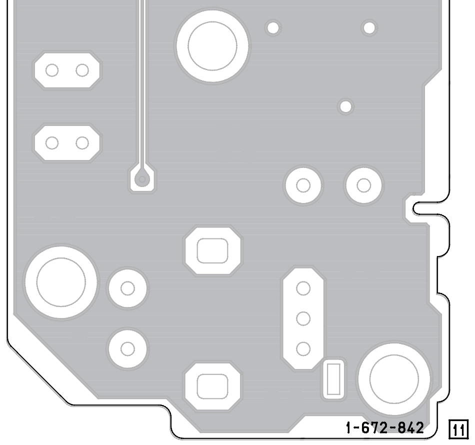
LT-34 (TABLE LED), TM-126 (TABLE MOTOR), DS-87 (DOOR SWITCH), LS-52 (CHACK SENSOR), LM-58 (LOADING MOTOR) SCHEMATIC DIAGRAMS

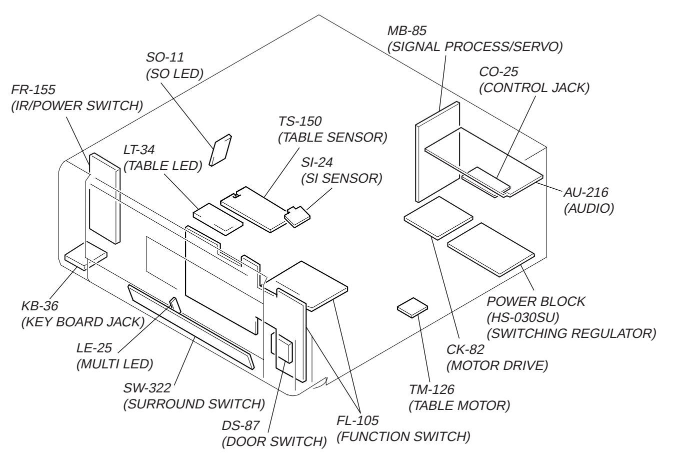
— Ref. No. LT-34, TM-126, DS-87, LS-52, LM-58 Board; 1,000 Series —



FL-105 (FUNCTION SWITCH) PRINTED WIRING BOARD (SIDE A)

— Ref. No. FL-105 Board; 3,000 Series —



For printed wiring boards

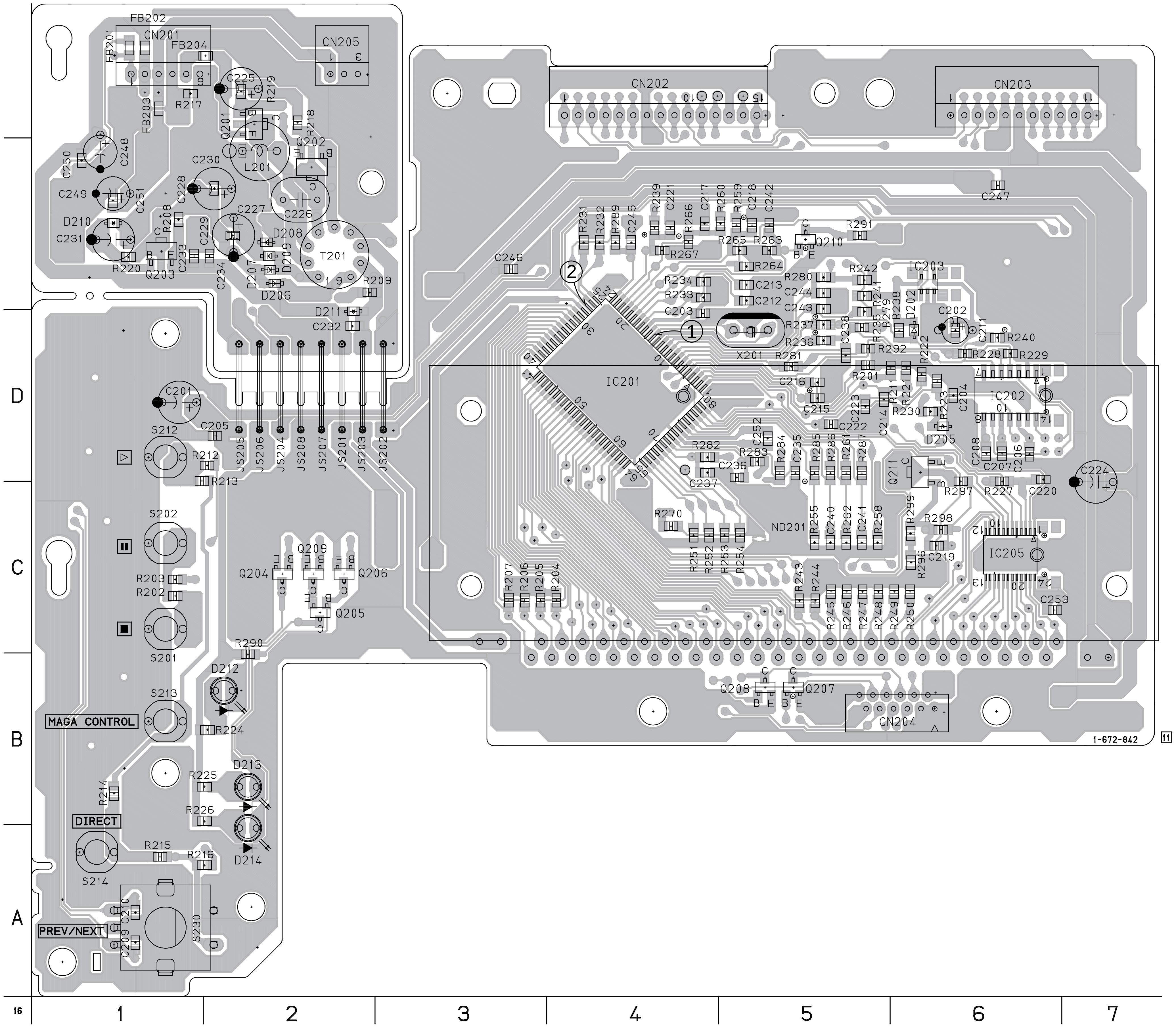
There are few cases that the part printed on this diagram isn't mounted in this model.

FL-105 BOARD

CN201	F-1	D213	B-2	Q204	C-2
CN202	F-4	D214	A-2	Q205	C-2
CN203	F-6			Q206	C-2
CN204	B-5			Q207	B-5
CN205	F-2	IC201	D-4	Q208	B-5
D202	D-6	IC202	D-6		
D205	D-6	IC203	E-6	Q209	C-2
D206	E-2	IC205	C-6	Q210	E-5
D209	E-2			Q211	C-6
D210	E-1	Q201	F-2		
		Q202	E-2		
D211	E-2	Q203	E-1		
D212	B-2				

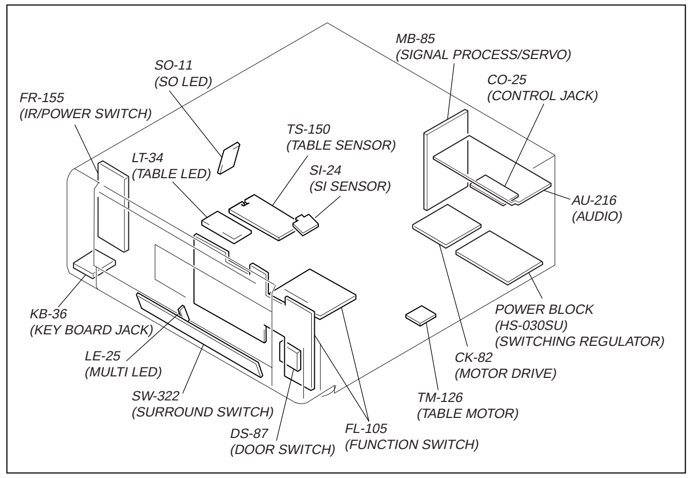
FL-105 (FUNCTION SWITCH) PRINTED WIRING BOARD (SIDE B)
— Ref. No. FL-105 Board; 3,000 Series —

FL-105 BOARD(SIDE B)



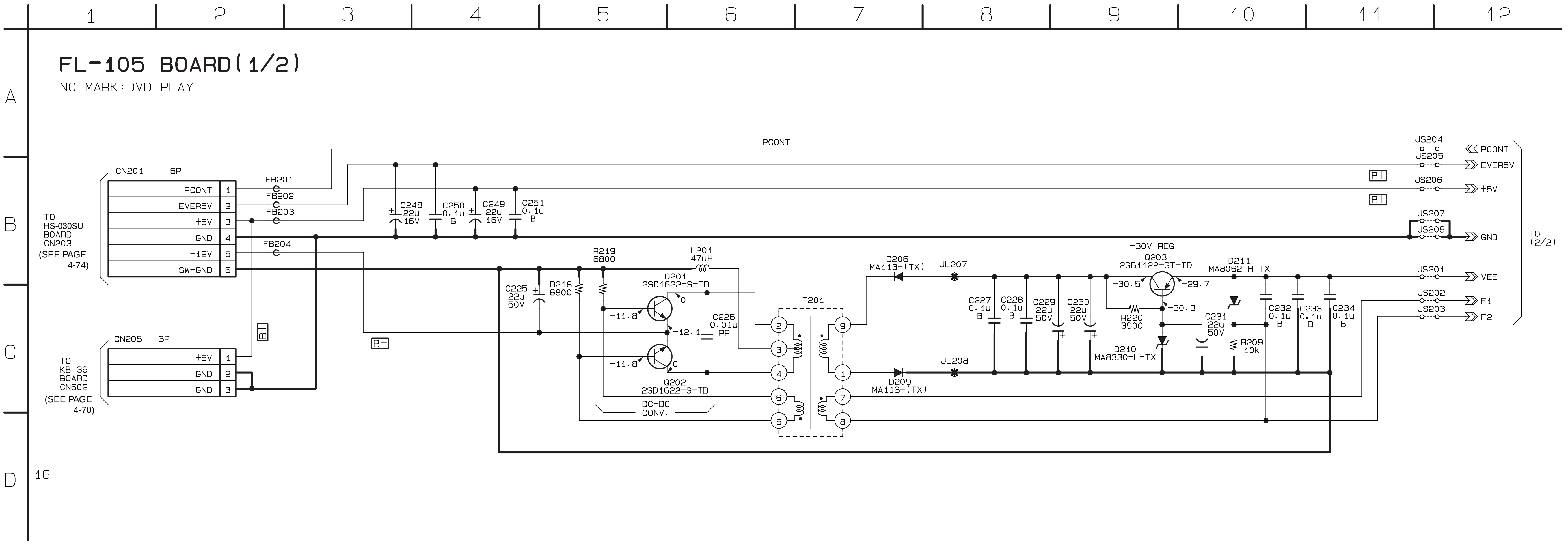
For printed wiring boards

There are few cases that the part printed on this diagram isn’t mounted in this model.



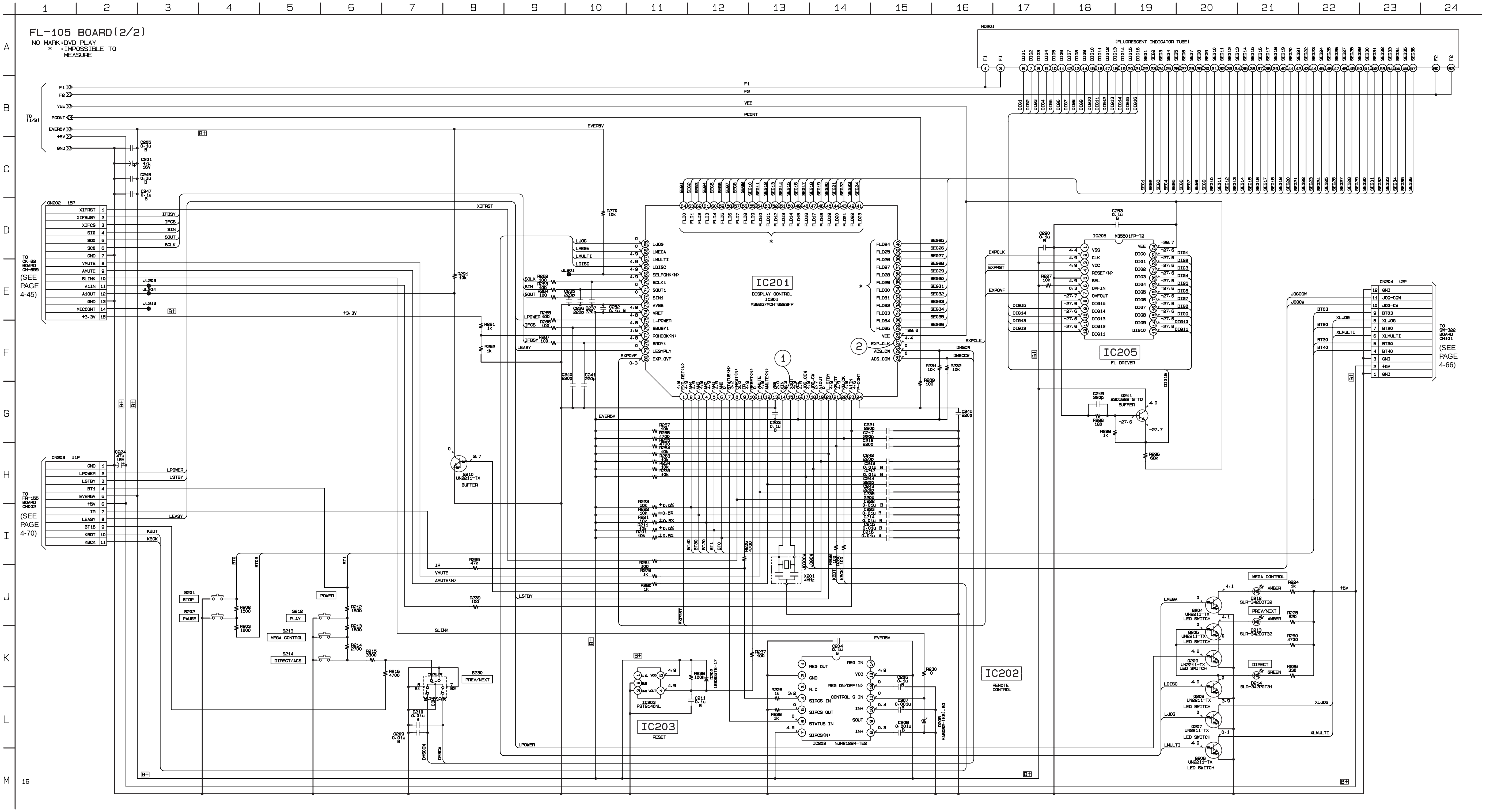
FL-105 (DC-DC CONVERTER) SCHEMATIC DIAGRAM
— Ref. No. FL-105 Board; 3,000 Series —

For schematic diagram
• Refer to page 4-55 for printed wiring board.

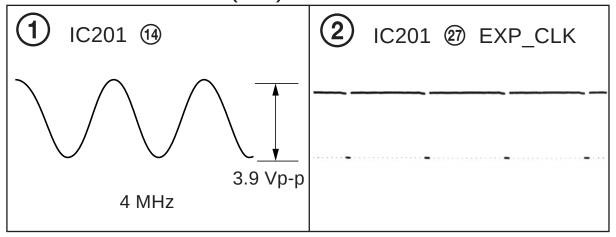


FL-105 (DISPLAY CONTORL) SCHEMATIC DIAGRAM
— Ref. No. FL-105 Board; 3,000 Series —

For schematic diagram
• Refer to page 4-55 for printed wiring board.

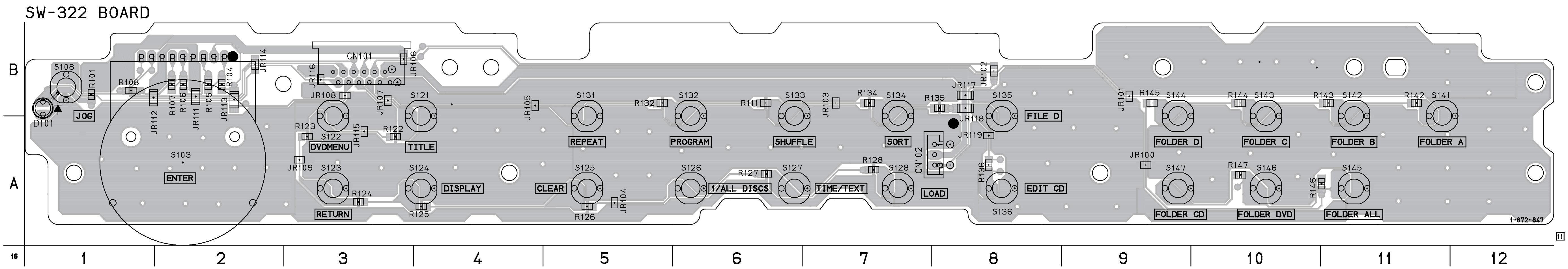


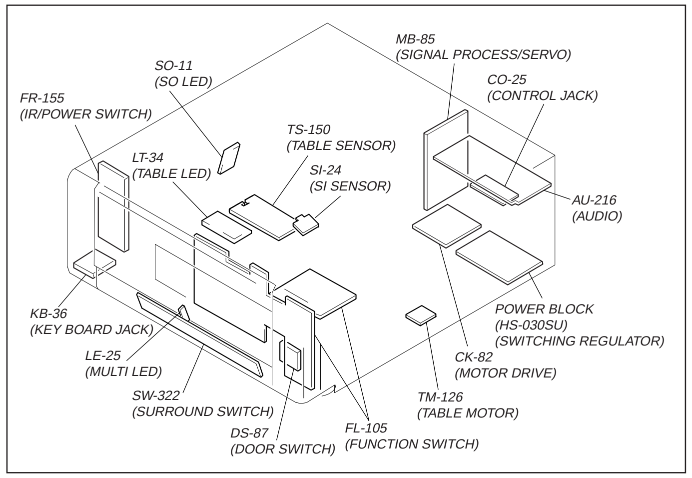
FL-105 BOARD (2/2)



SW-322 (SURROUND SWITCH), LE-25 (MULTI LED) PRINTED WIRING BOARDS

— Ref. No. SW-322, LE-25 Board; 1,000 Series —





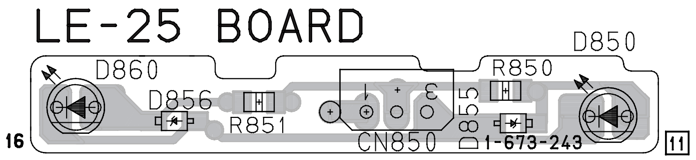
For printed wiring boards

There are few cases that the part printed on this diagram isn't mounted in this model.

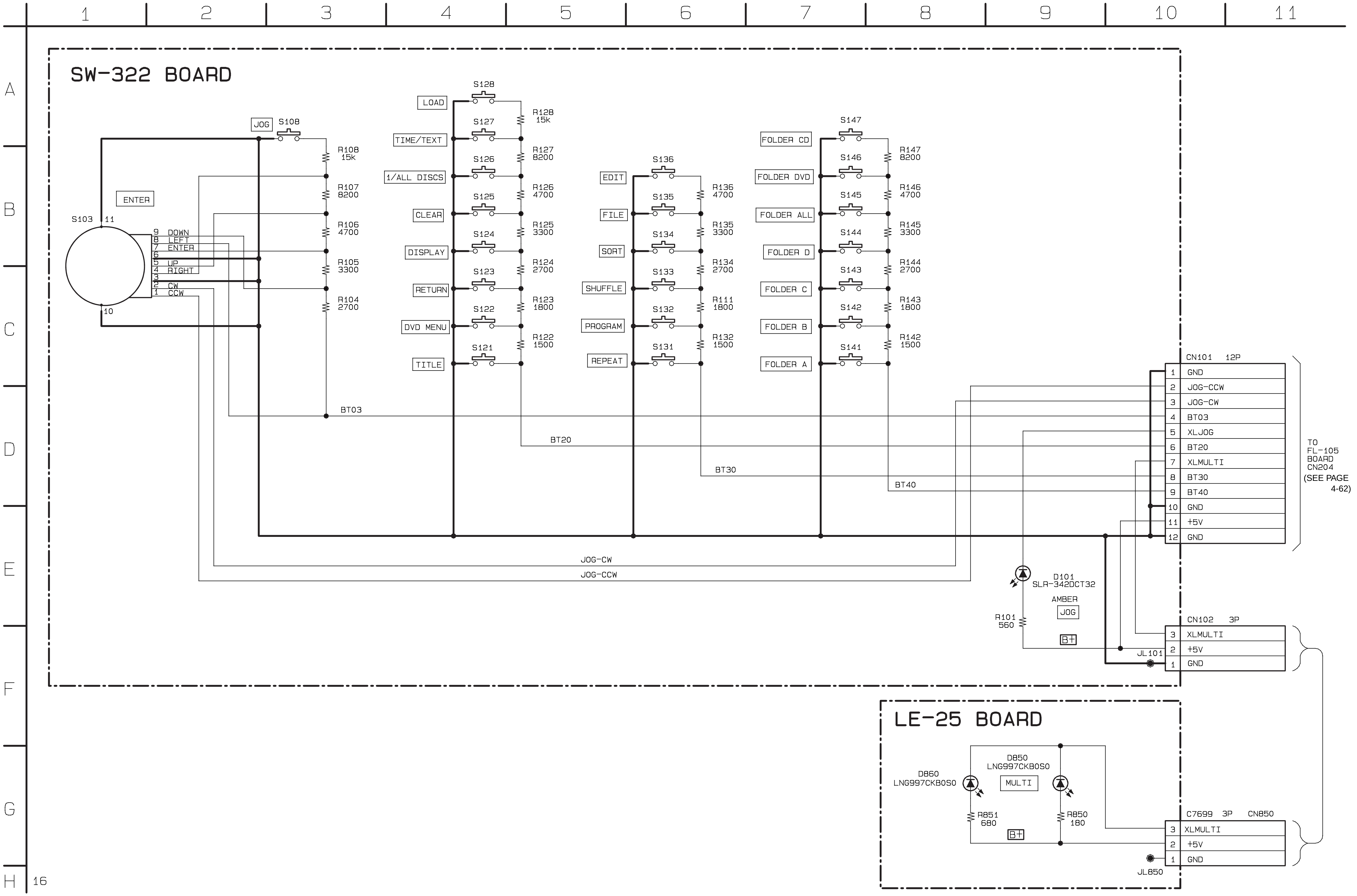
SW-322 BOARD

CN101 B-3
CN102 A-7

D101 A-1



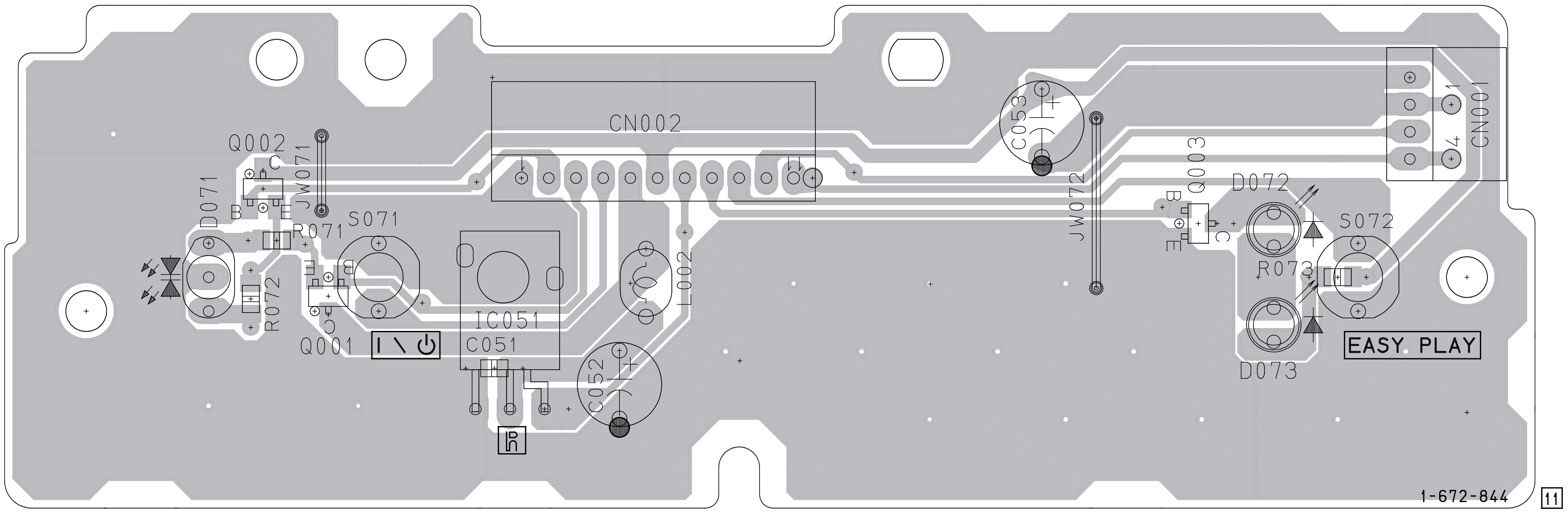
SW-322 (SURROUND SWITCH), LE-25 (MULTI LED) SCHEMATIC DIAGRAMS
— Ref. No. SW-322, LE-25 Board; 1,000 Series —

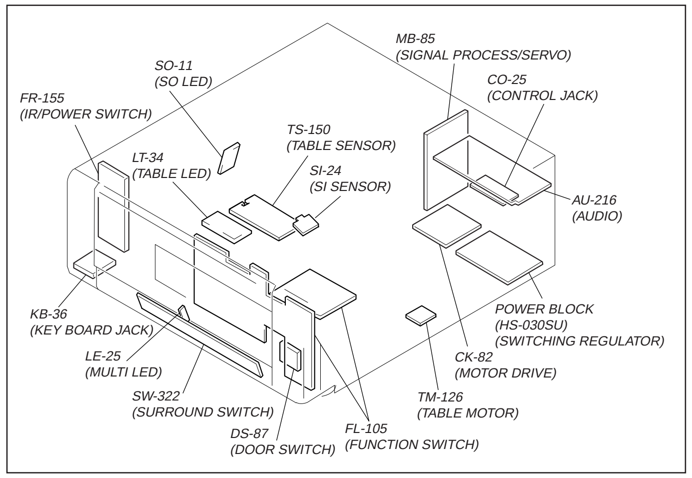


SURROUND SWITCH / MULTI LED
SW-322 LE-25

FR-155 (IR/POWER SWITCH), KB-36 (KEY BOARD JACK) PRINTED WIRING BOARDS
— Ref. No. FR-155, KB-36 Board; 1,000 Series —

FR-155 BOARD

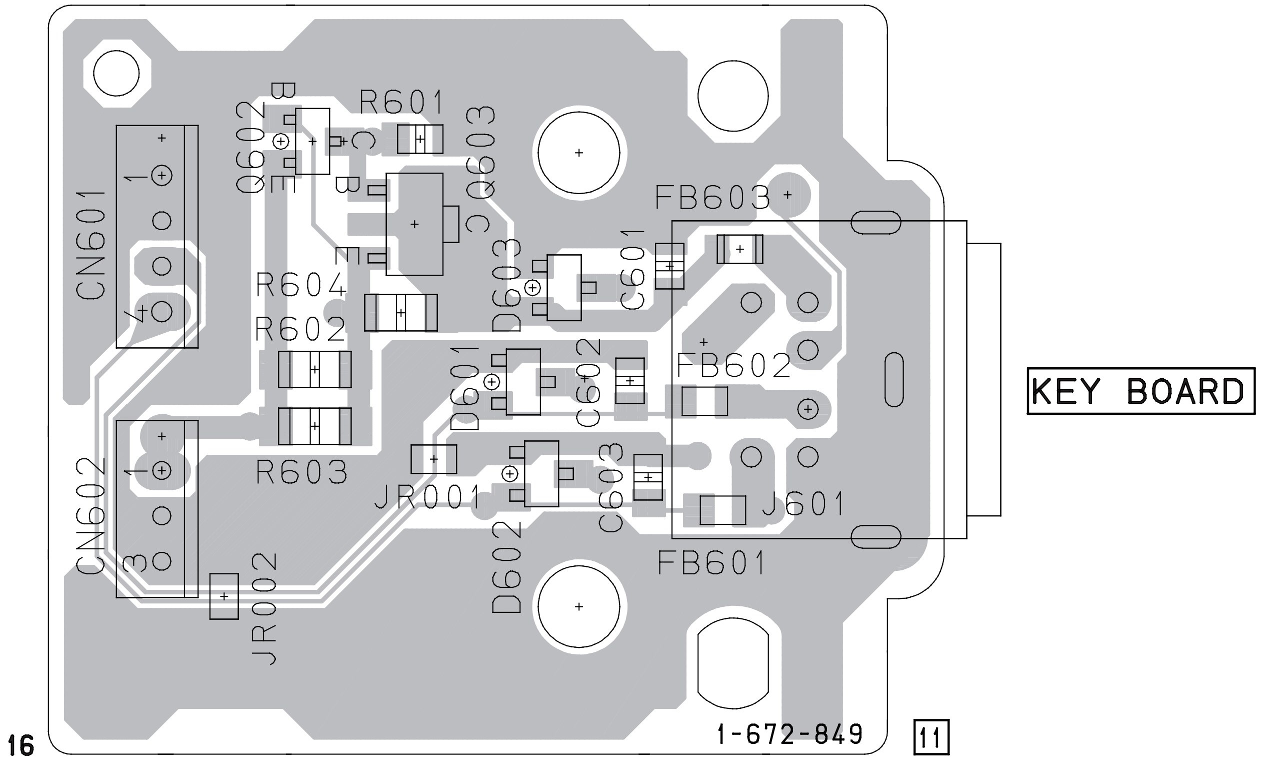




For printed wiring boards

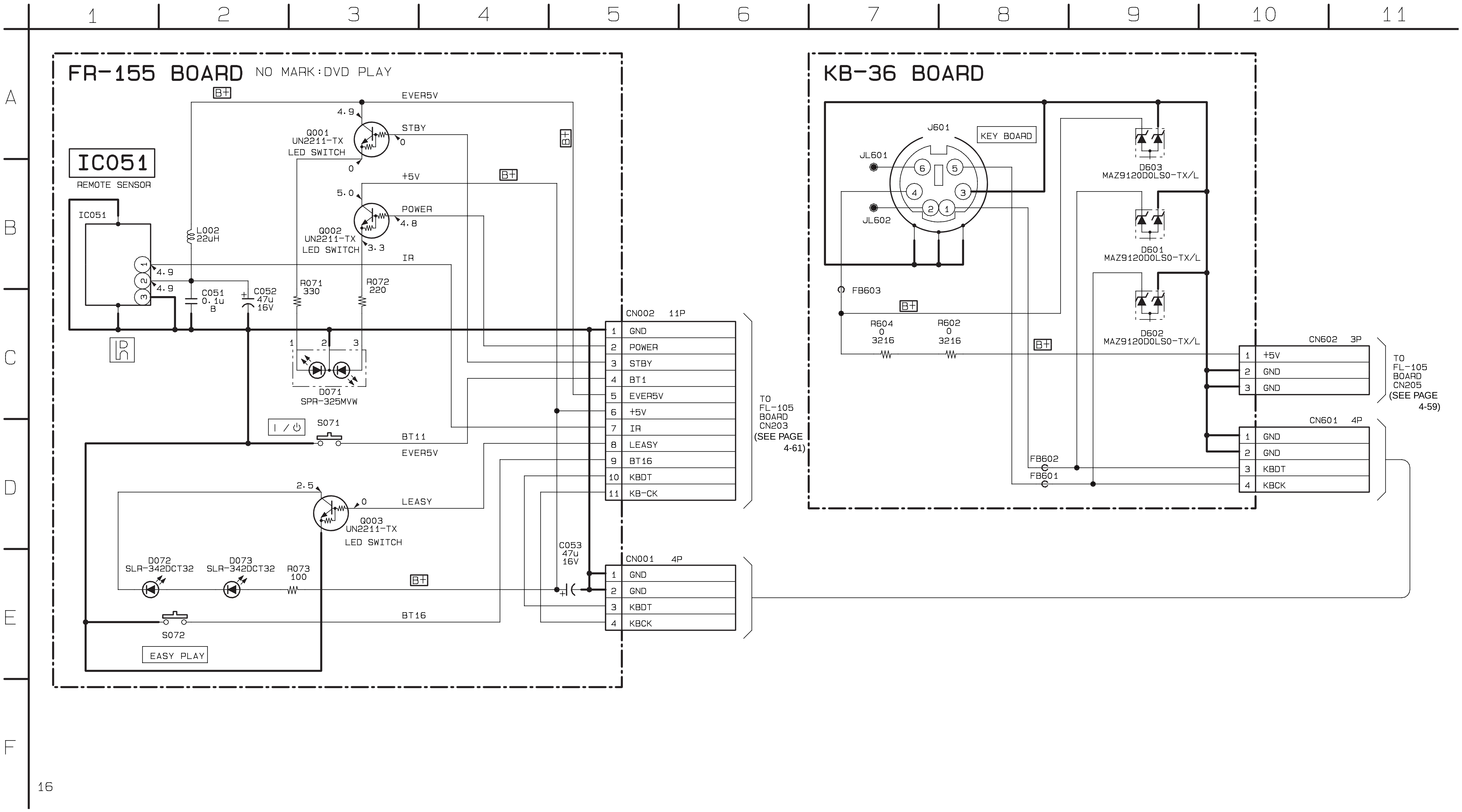
There are few cases that the part printed on this diagram isn't mounted in this model.

KB-36 BOARD



FR-155 (IR/POWER SWITCH), KB-36 (KEY BOARD JACK) SCHEMATIC DIAGRAMS

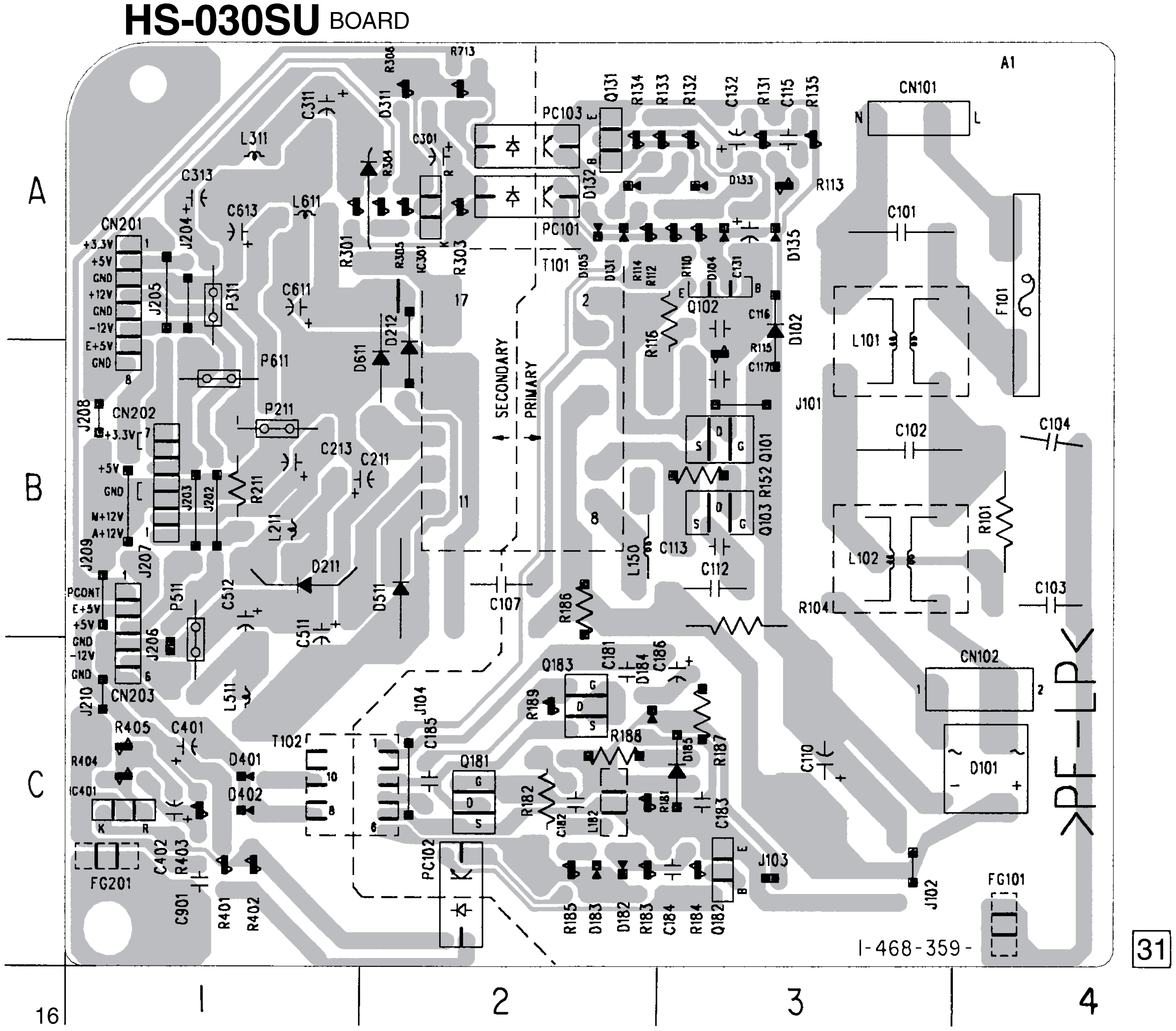
— Ref. No. FR-155, KB-36 Board; 1,000 Series —

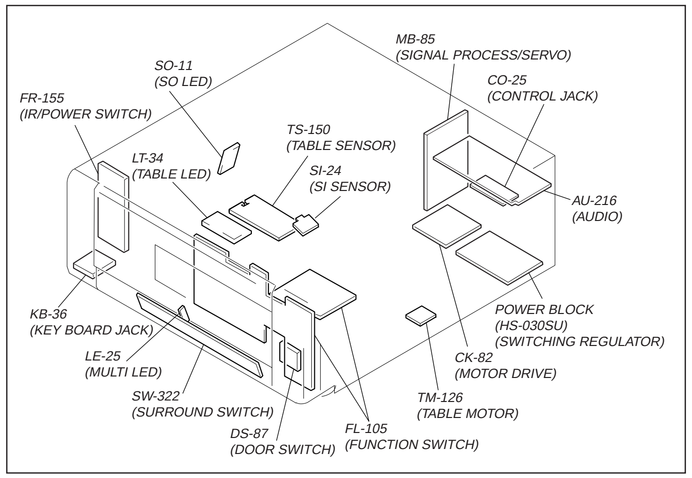


IR/POWER SWITCH / KEY BOARD JACK
FR-155 KB-36

HS-030SU (SWITCHING REGULATOR) PRINTED WIRING BOARD

— Ref. No. HS-030SU Board; 7,000 Series —





For printed wiring boards

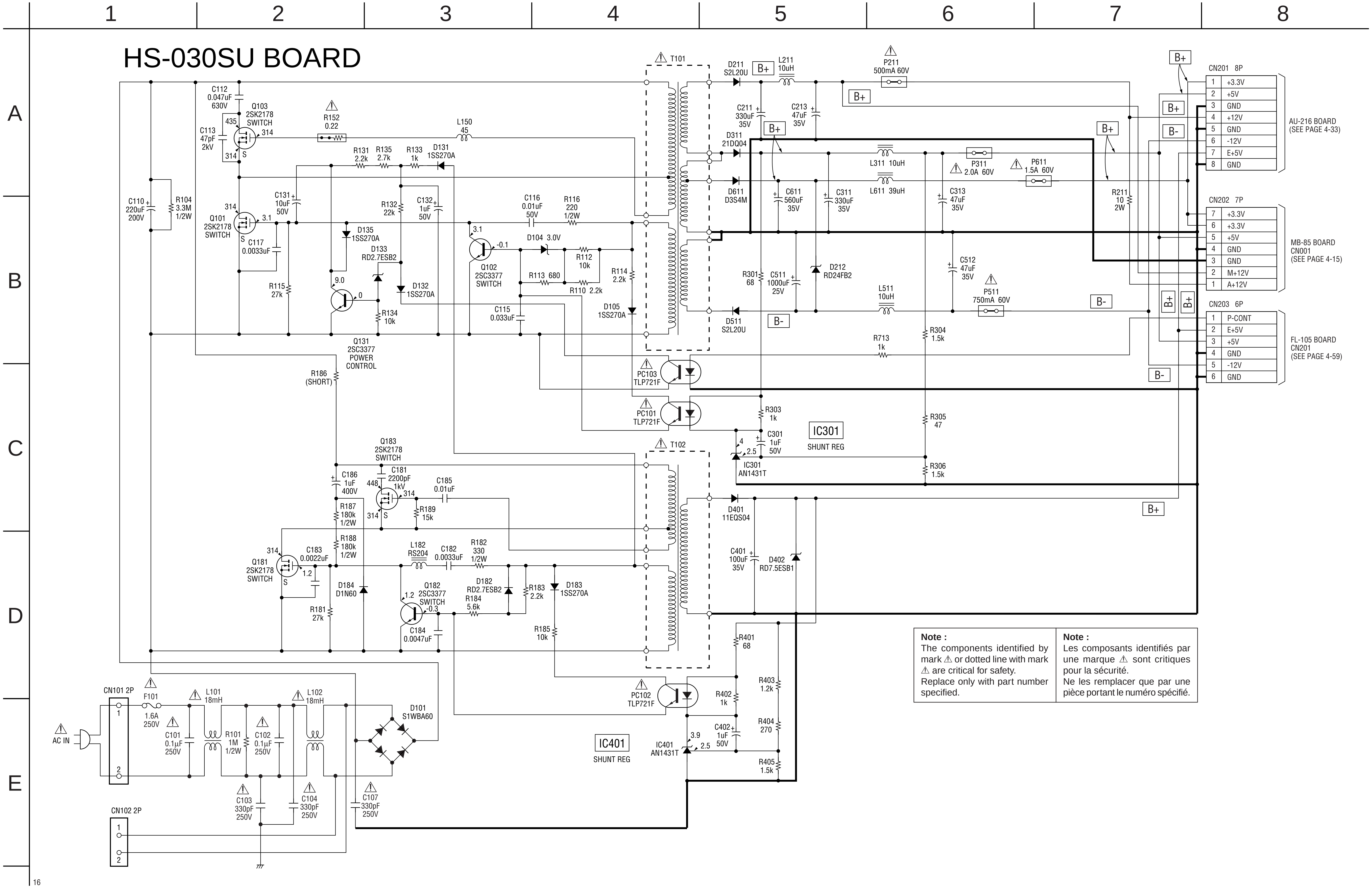
There are few cases that the part printed on this diagram isn't mounted in this model.

HS-030SU BOARD

CN101	A-3	D182	C-2	Q101	B-3
CN102	C-4	D183	C-2	Q102	A-3
CN201	A-1	D184	C-2	Q103	B-3
CN202	B-1	D211	B-1	Q131	A-2
CN203	B-1	D212	B-2	Q181	C-2
		D311	A-2	Q182	C-3
D101	C-4	D401	C-1	Q183	C-2
D104	A-3	D402	C-1		
D105	A-2	D511	B-2		
D131	A-2	D611	B-2		
D132	A-2				
D133	A-3	IC301	A-2		
D135	A-3	IC401	C-1		

HS-030SU (SWITCHING REGULATOR) SCHEMATIC DIAGRAM

— Ref. No. HS-030SU Board; 7,000 Series —



Note :	**Note :**
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

SECTION 5
IC PIN FUNCTION DESCRIPTION

5-1. SYSTEM CONTROL PIN FUNCTION (MB-85 BOARD IC202)

Pin No.	Pin name	I/O	Function
1	PB5	O	Analog filter gain control
2	PB6	O	VES gain control “H”: VES
3	PB7	O	Rear CH boost control “H”: rear boost
4	VCC3	-	Power supply
5	CLK	O	CPU clock out (25 MHz)
6	$\overline{\text{CS5}}$	O	Not used
7	$\overline{\text{CS4}}$	O	Chip select signal for ARP, SERVO DSP and HGA
8	$\overline{\text{CS3}}$	O	Chip select signal for SDRAM and AV DEC
9	$\overline{\text{CS2}}$	O	Chip select signal for REG and AV DEC
10	$\overline{\text{CS1}}$	O	Chip select signal for external SRAM
11	$\overline{\text{CS0}}$	O	Chip select signal for external FLASH ROM
12	$\overline{\text{NMI}}$	I	Not used (fixed at “H”)
13	$\overline{\text{HST}}$	I	Not used (fixed at “H”)
14	$\overline{\text{RST}}$	I	Reset signal input from IF CON
15	GND	-	Ground
16	MD0	I	Input of mode select 0 (fixed at “1”)
17	MD1	I	Input of mode select 1 (fixed at “0”)
18	MD2	I	Input of mode select 2 (fixed at “0”)
19	RDY	I	Wait signal input
20	P81	I	Test terminal (fixed at “H”)
21	P82	I	Test terminal (fixed at “L”)
22	$\overline{\text{RD}}$	O	Read enable signal output
23	$\overline{\text{WR0}}$	O	High byte write enable signal output (16 bit and 8 bit)
24	$\overline{\text{WR1}}$	O	Low byte write enable signal output (16 bit only)
25-32	D16-D23	I/O	Data bus D0-D7 (16 bit)
33-39	D24-D30	I/O	Data bus D8-D14 (16 bit), D0-D6 (8 bit)
40	GND	-	Ground
41	D31	I/O	Data bus D15 (16 bit), D7 (8 bit)
42	A00	O	Address bus A0
43	VCC5	-	Power supply
44-64	A01-A21	O	Address bus A1-A21
65	GND	-	Ground
66	P66	O	PLL IC control output “H”: DOUBLE
67	P67	I	DIAG mode signal input “L”: DIAG
68	EOP0	I	Not used
69	AVCC	-	Power supply
70	AVRH	-	Reference power supply (+3.3V)
71	AGND	-	Ground
72	AN0	I	Set of mode 0
73	AN1	I	Set of mode 1
74	AN2	I	Set of mode 2
75	AN3	I	Set of mode 3 (fixed at “H”)
76	SI0	I	Serial data input from IF CON and EEPROM
77	SO0	O	Serial data output to IF CON and EEPROM
78	SC0	O	Serial clock output to IF CON and EEPROM
79	SI1	I	Serial bus 1 (for data input)
80	SO1	O	Serial bus 1 (for data output)
81	SI2	I	Serial bus 2 (for data input)
82	SO2	O	Serial bus 2 (for data output)
83	PF7	O	Reset signal output
84	DACK1	O	Output of DMA-ACK 0 to AV DEC
85	DACK0	O	Output of DMA-ACK 1 to AV DEC
86	DREQ1	I	Input of DMA-REQ 0 from AV DEC
87	DREQ0	I	Input of DMA-REQ 1 from AV DEC
88	INT3	I	Input of interrupt from HGA
89	SC1	O	Serial clock output
90	GND	-	Ground
91	X1	O	Clock output (12.5MHz)
92	X0	I	Clock input (12.5MHz)
93	VCC5	-	Power supply
94	INT1	I	Input of interrupt ARP and SERVO DSP
95	INT0	I	Input of interrupt from AV DEC
96	PB0	I	Rear panel lime input select (“H”: DISC “L”: EXT)
97	PB1	O	Chip select signal to IF CON
98	PB2	O	Chip select signal to DAC (Lt and Rt)
99	PB3	O	Chip select signal to DAC (L and R)
100	PB4	O	DVD/CD select (“H”: 44.1kHz “L”: 48kHz)

SECTION 6
TEST MODE

6-1. GENERAL DESCRIPTION

The Test Mode allows you to make diagnosis and adjustment easily using the remote commander and monitor TV. The instructions, diagnostic results, etc. are given on the on-screen display (OSD).

6-2. STARTING TEST MODE

Press [TITLE], [CLEAR], [I/⏻] buttons on the remote commander in this order with the power of main unit in OFF status, and the Test Mode starts, then the menu shown below will be displayed on the TV screen. At the bottom of menu screen, the model name and revision number are displayed.
To execute each function, select the desired menu and press its number on the remote commander.
To exit from the Test Mode, press the POWER button.

```
          Test Mode Menu

 0. Syscon Diagnosis
 1. Drive Auto Adjustment
 2. Drive Manual Operation
 3. Mecha Aging
 4. Emergency History
 5. Version Information
 6. Video Level Adjustment
                  Exit: Power Key
_
Mode    :DPX1180UC
Revision:x.xxx
```

6-3. SYSCON DIAGNOSIS

The same contents as board detail check by serial interface can be checked from the remote commander.
On the Test Mode Menu screen, press [0] key on the remote commander, and the following check menu will be displayed.

```
      ### Syscon Diagnosis ###
           @  Check Menu
 0. Quit
 1. All
 2. Version
 3. Peripheral
 4. Servo
 5. Supply
 6. AV Decoder
 7. Video
 8. Audio
_
```

0. Quit

Quit the Syscon Diagnosis and return to the Test Mode Menu.

1. All

All items continuous check
This menu checks all diagnostic items continuously. Normally, all items are checked successively one after another automatically unless an error is found, but at a certain item that requires judgment through a visual check to the result, the following screen is displayed for the key entry.

```
     ### Syscon Diagnosis ###

        Diag All Check
         No.2 Version

 2-2. Revision
ROM Revision = xxxx



Press NEXT Key to Continue
Press PREV Key to Repeat
_
```

Following the message, press [NEXT] key to go to the next item, or [PREV] key to repeat the same check again. To quit the diagnosis and return to the Check Menu screen, press [STOP] or [ENTER] key. If an error occurred, the diagnosis is suspended and the error code is displayed as shown below.

```
    ### Syscon Diagnosis ###




 3-3. EEPROM Check
Error 03: EEPROM Write/Reed N
Address    : 00000001
Write Data : 2492
Read Data  : 2490
Press NEXT Key to Continue
Press PREV Key to Repeat
_
```

Press [STOP] key to quit the diagnosis, or [PREV] key to repeat the same item where an error occurred, or [NEXT] key to continue the check from the item next to faulty item.

Selecting 2 and subsequent items calls the submenu screen of each item.
For example, if "5. Supply" is selected, the following submenu will be displayed.

```
     ### Syscon Diagnosis ###
            Check Menu
            No.5 Supply
 0. Quit
 1. All
 2. ARP Register Check
 3. ARP to RAM Data Bus
 4. ARP to RAM Address Bus
 5. ARP RAM Check
_
```

0. Quit

Quit the submenu and return to the main menu.

1. All

All submenu items continuous check
This menu checks 2 and subsequent items successively. At the item where visual check is required for judgment or an error occurred, the checking is suspended and the message is output for key entry. Normally, all items are checked successively one after another automatically unless an error is found.

Selecting 2 and subsequent items executes respective menus and outputs the results.
For the contents of each submenu, see “Check Items List”.

General Description of Checking Method

2. Version

(2-2) Revision
ROM revision number is displayed.
Error: Not detected.
The revision number defined in the source file of ROM (IC205) is displayed with four digits.

(2-3) ROM Check Sum
Check sum is calculated.
Error: Not detected.
The 8-bit data are added at addresses 0x000F0000 ~ 0x002EFFFF of ROM (IC205) and the result is displayed with 4-digit hexadecimal number. Error is not detected.
Compare the result with the specified value.

(2-4) Model Type
Model code is displayed.
Error: Not detected.
The model code read from EEPROM (IC201) is displayed with 2-digit hexadecimal number.

(2-5) Region
Region code is displayed.
Error: Not detected.
The region code determined from the model code is displayed.

3. Peripheral

(3-2) Gate Array Check
Data write → read, and accord check
Error 02: Gate array write/read discord
Data 0x00~0xFF are written to the address 0xF of GA (IC601), then read and checked if they accord.

(3-3) EEPROM Check
Data write → read, and accord check
Error 03: EEPROM write/read discord
Data 0x9249, 0x2942, 0x4294 are written to addresses 0x00~0xFF of EEPROM (IC201), then read and checked.
Before writing, the data are saved, then after checking, they are written to restore the contents of EEPROM.

(3-4) NAND Flash Check
Data clear → write → read, and accord check
Error 04: Clear error
05: Write error
06: Read data discord
21: Faulty blocks exceed 10
The data clear, write, read, and check are executed to the block 0 of Flash memory (IC602).
In case of a faulty block, its address is displayed.
An error is output if faulty blocks exceed 10.

4. Servo

(4-2) Servo DSP Check
Data write → read, and accord check
Error 12: Read data discord
Data 0x9249, 0x2942, 0x4294 are written to the address 0x602 of RAM in the Servo DSP (IC701), then read and checked.

(4-3) DSP Driver Test
Test signal data → DSP Driver
Error: Not detected.
Caution: Do not conduct this test with a mechanical deck connected.
The maximum voltage is applied to the Servo Driver IC (IC801, IC802). If mechanical deck is connected, the motor and optics could be damaged. Disconnect mechanical deck following the output message, then enter specified 4- or 5-digit number from the remote commander, and press the [ENTER]. The test is conducted only when the input data accord. Check the output level, then press the [NEXT] to finish the test.
This test is skipped if “All” is selected.

Supplement: How to disconnect mechanical deck
Disconnect flat cables connected to the CN002 and CN003 of MB-85 board. Also, disconnect harness from the CN011.

5. Supply

Caution: Do not conduct this check with a mechanical deck connected.
An access is made to the stream supply and servo control IC (IC303) and external RAM (IC304) using check data.
If mechanical deck is connected, the motor and optics could be damaged. This check is also executed by the “All” menu item.

Supplement: How to disconnect mechanical deck Disconnect flat cables connected to the CN002 and CN003 of MB-85 board. Also, disconnect harness from the CN011.

(5-2) ARP Register Check
Data write → read, and accord check
Error 08: ARP register write, and read data discord
Data 0x00 to 0xFF are written to the TMAX register (address 0xC6) in ARP (IC303), then they are read and checked.

(5-3) ARP to RAM Data Bus
Data write → read, and accord check
Error 09: ARP ← → RAM data bus error
Data 0x0001 to 0x8000 where one bit each is set to 1 are written to the address 0 of RAM (IC304) connected to the ARP (IC303) through the bus, then they are read and checked. In case of discord, written bit pattern and read data are displayed. If data where multiple bits are 1 are read, the bits concerned may touch each other. Further, if data where certain bit is always 1 or 0 regardless of written data, the line could be disconnected or shorted.

(5-4) ARP to RAM Address Bus
Data write → other address read discord check
Error 10: ARP → RAM address bus error
Caution: Address and data display in case of an error is different from the display of other diagnosis (described later).
Before starting the test, all addresses of RAM (IC304) are cleared to 0x0000.
First, 0xA55A is written to the address 0x00000, and the address data are read and checked from addresses 0x00001 to 0x80000 while shifting 1 bit each. Next, the data at that address is cleared, and it is written to the address 0x00001, and read and checked in the same manner. This check is repeated up to the address 0x80000 while shifting the address data by 1 bit each.
If data other than 0 is read at the addresses except written address, an error is given because all addresses were already cleared to 0. In this check, the error display pattern is different from that of other diagnosis; read data, written address, and read address are displayed in this order. However, the message uses same template, and accordingly exchange Address and Data when reading. The following dis-play, for example,

```
    ### Syscon Diagnosis ###



 5-4. ARP to RAM Address Bus
Error 10: ARP - RAM Address B
Address    : 0000A55A
Write Data : 00000000
Read Data  : 00080000
Press NEXT Key to Continue
Press PREV Key to Repeat
_
```

shows the data 0xA55A was read from address 0x00080000 though it was written to the address 0x00000000. This implies that these addresses are in the form of shadow. Also, if the read data is not 0xA55A, another error will be present.

(5-5) ARP RAM Check
Data write → read, and accord check
Error 11: ARP RAM read data discord
The program code data stored in ROM are copied to all areas of RAM (IC304) connected to the ARP (IC303) through the bus, then they are read and checked if they accord. If the detail check was selected initially, the data are written to all areas and read, then the same test is conducted once again with the data where all bits are inverted between 1 and 0. If discord is detected, faulty address, written data, and read data are displayed following the error code 11, and the test is suspended.

6. AV Decoder

(6-2) 1930 RAM
Data write → read, and accord check
Error 13: AVD RAM read data discord
The program code data stored in ROM (IC205) are copied to all areas of RAM (IC402, IC403) connected to the AVD (IC401) through the bus, then they are read and checked if they accord. Further, the same test is conducted once again with the data where all bits are inverted between 1 and 0. If discord is detected, faulty address, written data, and read data are displayed following the error code 13, and the test is suspended.

(6-3) 1930 SP
ROM → AVD RAM → Video OUT
Error: Not detected.
The data including sub picture streams in ROM (IC205) are transferred to the RAM (IC402, IC403) in AVD (IC401), and output as video signals from the AVD (IC401). They are output from all video terminals (Composite, Y/C, Component).

7. Video

(7-2) Color Bar
AVD color bar command write → Video OUT
Error: Not detected.
The command is transferred to the AVD, and the color bar signals are output from video terminals.
They are output from all video terminals (Composite, Y/C, Component).

8. Audio

(8-2) ARP -> 1930
Error 14 : ARP → 1930 video NG
15 : ARP → 1930 audio NG

(8-3) Test Tone
A pink noise signal is output from the AVD (IC401) through optical coaxial digital terminal and analog audio terminal.
Error: Not detected.
All channels → 2ch Left → 2ch Right → Front Left → Front Right → Rear Left → Rear Right → Center → Sub Woofer are checked in this order.
Note: Sub Woofer is checked only for low-frequency components, and no sound will be heard unless a proper super woofer is connected.

Check Items List

2) Version
(2-2) Revision
(2-3) ROM Check Sum
(2-4) Model Type
(2-5) Region

3) Peripheral
(3-2) Gate Array Check
(3-3) EEPROM Check
(3-4) NAND Flash Check

4) Servo
(4-2) Servo DSP Check
(4-3) DSP Driver Test

5) Supply
(5-2) ARP Register Check
(5-3) ARP to RAM Data Bus
(5-4) ARP to RAM Address Bus
(5-5) ARP RAM Check

6) AV Decoder
(6-2) 1930 RAM
(6-3) 1930 SP

7) Video
(7-2) Color Bar

8) Audio
(8-2) ARP → 1930
(8-3) Test Tone

Error Codes List
00: Error not detected
01: RAM write/read data discord
02: Gate array NG
03: EEPROM NG
04: Flash memory clear error
05: Flash memory write error
06: Flash memory read data discord
08: ARP register read data discord
09: ARP ← → RAM data bus error
10: ARP ← → RAM address bus error
11: ARP RAM read data discord
12: Servo DSP NG
13: 1930 SDRAM NG
14: ARP → 1930 video NG
15: ARP → 1930 audio NG
16: 1910 UCODE download NG
17: System call error (function not supported)
18: System call error (parameter error)
19: System call error (illegal ID number)
20: System call error (time out)
21: NAND Flash faulty blocks exceed 10
90: Error occurred
91: User verification NG
92: Diagnosis cancelled

6-4. DRIVE AUTO ADJUSTMENT

On the Test Mode Menu screen, press [1] key on the remote commander, and the drive auto adjustment menu will be displayed.

```
   ## Drive Auto Adjustment ##

         Adjustment Menu

 0. All
 1. DVD-SL
 2. CD
 3. DVD-DL
 4. SACD
 5. SL->CD->DL
_

                 Exit:RETURN
```

Normally, [0] is selected to adjust DVD (single layer), CD, DVD (dual layer), and SACD in this order. But, individual items can be adjusted for the case where adjustment is suspended due to an error. In this mode, the adjustment can be made easily through the operation following the message displayed on the screen. The disc used for adjustment must be the one specified for adjustment. However, for SACD disc, use the player with initial data if the disc is not available.

0. ALL

Select [0] and press [ENTER] key, and the servo set data in EEPROM will be initialized. Then, 1. DVD-SL disc, 2. CD disc, 3. DVD-DL disc, and 4. SACD disc are adjusted in this order. Each time one disc was adjusted, it is ejected. Replace it with the specified disc following the message. Though the message to confirm whether discs other than SACD disc are adjusted is not displayed, you can finish the adjustment if pressing the [STOP] button. During adjustment of each disc, the measurement for disc type judgment is made. As automatic adjustment does not judge the disc type unlike conventional models, take care not to insert wrong type discs. Also, do not give a shock during adjustment.

1. DVD-SL (single layer)

Select [1], insert DVD single layer disc, and press [ENTER] key, and the adjustment will be made through the following steps, then adjusted values will be written to the EEPROM.

DVD Single Layer Disc Adjustment Steps

1. SLED TILT Reset
2. Disc Check Memory SL
3. Wait 300 msec
4. Set Disc Type SL
5. LD ON
6. Spdl Start
7. Wait 1 sec
8. Focus Servo ON 0
9. Auto Track Offset Adjust
10. CLVA ON
11. Wait 500 msec
12. Tracking ON
13. Wait 1 sec
14. Sled ON
15. Check CLV Lock
16. Auto LFO Adjust
17. Auto Focus Offset Adjust
18. Auto Tilt Position Adjust
19. Auto Focus Gain Adjust
20. Auto Focus Offset Adjust
21. EQ Boost Adjust
22. Auto LFO Adjust
23. Auto Track Gain Adjust, Search Check
24. 32Tj Fwd
25. 32Tj Rev
26. 500Tj Fwd
27. 500Tj Rev

28. All Servo Stop
29. Eep Copy Loop Filter Offset

2. CD

Select [2], insert CD disc, and press [ENTER] key, and the adjustment will be made through the following steps, then adjusted values will be written to the EEPROM.

CD Adjustment Steps

1. Sled Tilt Rest
2. Disc Check Memory CD
3. Wait 500 msec
4. Set Disc Type CD
5. LD ON
6. Spdl Start
7. Wait 500 msec
8. Focus Servo ON 0
9. Auto Track Offset Adjust

10. CLVA ON
11. Wait 500 msec
12. Tracking ON
13. (TC Display Start)
14. Wait 1 sec
15. Jitter Display Start
16. Sled ON
17. Check CLV ON
18. Auto LFO Adjust
19. Auto Focus Offset Adjust
20.
21. Auto Focus Gain Adjust
22. Auto Focus Offset Adjust
23. EQ Boost Adjust
24. Auto LFO Adjust
25. Auto Track Gain Adjust, Search Check
26. 32Tj Fwd
27. 32Tj Rev
28. 500Tj Fwd
29. 500Tj Rev

30. All Servo Stop

3. DVD-DL (dual layer)

Select [3], insert DVD dual layer disc, and press [ENTER] key, and the adjustment will be made through the following steps, then adjusted values will be written to the EEPROM.

DVD Dual Layer Disc Adjustment Steps

1. Sled Tilt Reset
2. Disc Check Memory DL
3. Wait 500 msec
4. Set Disc Type DL
5. LD ON
6. Spdl Start
7. Wait 1 sec, Layer 1 Adjust
8. Focus Servo ON 1
9. Auto Track Offset Adjust
10. CLVA ON
11. Wait 500 msec
12. Tracking ON
13. Wait 500 msec
14. Sled ON
15. Check CLV Lock
16. Auto Loop Filter Offset Auto Focus Adjust
17.
18. Auto Focus Gain Adjust
19. Auto Focus Offset Adjust
20. EQ Boost Adjust
21. Auto Loop Filter Offset
22. Auto Track Gain Adjust, Search Check
23. 32Tj Fwd
24. 32Tj Rev
25. 500Tj Fwd
26. 500Tj Rev, Layer 0 Adjust
27. Fj (L1 -> L0)
28. Auto Track Offset Adjust L0
29. CLVA ON
30. Wait 500 msec
31. Tracking ON
32. Wait 500 msec
33. Sled ON
34. Check CLV Lock
35. Auto Focus Filter Offset
36. Auto Focus Adjust
37.
38. Auto Focus Gain Adjust
39. Auto Focus Offset Adjust
40. EQ Boost Adjust
41. Auto Loop Filter Offset
42. Auto Track Gain Adjust, Search Check
43. 32Tj Fwd
44. 32Tj Rev
45. 500Tj fwd
46. 500Tj Rev, Layer Jump Check
47. Lj (L0 -> L1)
48. Lj (L1 -> L0)
49. All Servo Stop

4. SACD

Select [4], insert SACD disc, and press [ENTER] key, and the adjustment will be made through the following steps, then adjusted values will be written to the EEPROM. However, if SACD disc is not available, use the player with initial data, skipping the SACD adjustment. In this case, you can finish the adjustment if pressing the [STOP] button.

SACD Adjustment Steps
1. Sled Tilt Reset
2. Set Disc Type CD
3. LD ON
4. Spdl Start
5. Wait 500 msec
6. Focus Servo ON 0
7. Auto track Offset Adjust
8.
9. CLVA ON
10. Wait 500 msec
11. Tracking ON
12. Wait 1 sec
13. Sled ON
14. Check CLV ON
15. Auto Focus Offset Adjust
17.
18. Auto Focus Gain Adjust
19. Auto Focus Offset Adjust
20. EQ Boost Adjust
21. Auto LFO Adjust
22. Auto Track Gain Adjust
23. 32Tj Fwd
24. 32Tj Rev
25. 500Tj Fwd
26. 500Tj Rev
27. All Servo Stop */

5. SL –> CD –> DL

Select [5], insert DVD single layer, CD disc, DVD dual layer disc, and press [ENTER] key, and the adjustment will be made through [1] DVD-SL, [2] CD, [3] DVD-DL, then adjusted values will be wretten to the EEPROM.

6-5. DRIVE MANUAL OPERATION

On the Test Mode Menu screen, select [2], and the manual operation menu will be displayed. For the manual operation, each servo on/off control and adjustment can be executed manually.

```
   ## Drive Manual Operation ##
          Operation Menu
  1. Disc type
  2. Servo Control
  3. Track/Layer Jump
  4. Manual Adjustment
  5. Auto Adjustment
  6. Memory Check
  7. 200CHG MechaCon 1
  8. 200CHG MechaCon 2
  0. Disc Check Memory
_
                 Exit:RETURN
```

In using the manual operation menu, take care of the following points. These commands do not provide protection, thus requiring correct operation. The sector address or time code field is displayed when a disc is loaded.

1. Set correctly the disc type to be used on the Disc Type screen.
   The disc type must be set after a disc was loaded.
   The set disc type is cleared when the tray is opened.
2. After power ON, if the Drive Manual Operation was se-lected, first perform "Reset SLED TILT" by opening 1. Disc Type screen.
3. In case of an alarm, immediately press the [STOP] but-ton to stop the servo operation, and turn the power OFF.

Basic operation (controllable from front panel or remote commander)

[I/⏻]	Power OFF
[■]	Servo stop
[⏏ OPEN]	Stop+Eject/Loading
[↺]	Return to Operation Menu or Test Mode Menu
[NEXT ▶▶I], [PREV I◀◀]	Transition between sub modes of menu
[1] to [9], [0]	Selection of menu items
Cursor UP/DOWN	Increase/Decrease in manually adjusted value

0. Disc Check Memory

```
             Disc Check


 1. SL Disc Check
 2. CD Disc Check
 3. DL Disc Check



 0. Reset  SLED TILT
_
```

On this screen, the mirror time is measured to judge the disc and it is written to the EEPROM. First load DVD SL disc and press [1], next load CD disc and press [2], and finally load DVD DL disc and press [3].
The adjustment must be executed more than once after default data were written. External vibration or shock to the player must not be given. Reference value for DVD is from 10 to 20, and for CD, from 28 to 4F.
Check that the value of CD is larger than that of DVD.
When those values are beyond a range perform this adjustment again.
From this screen, you can go to another mode by pressing [NEXT] or [PREV] key, but you cannot enter this mode from another mode. You can enter this mode from the Operation Menu screen only.

1. Disc Type

```
          Disc Type
 1. Disc Type Auto Check
 2. DVD SL 12cm
 3. DVD DL 12cm
 4. CD     12cm
 5. SACD   12cm
 6. DVD SL  8cm
 7. DVD DL  8cm
 8. CD      8cm
 9. SACD    8cm
 0. Reset SLED TILT
_                   EMG. 00
  0. Reset SLED TILT
```

On this screen, select the disc type. To select the disc type, press the number of the loaded disc. The selected disc type is displayed at the bottom. Selecting [1] automatically selects and displays the disc type. In case of wrong display, retry “Disc Check Memory”.
Also, opening the tray causes the set disc type to be cleared. In this case, set the disc type again after loading.
In performing manual operation, the disc type must be set.
Once the disc type has been selected, the sector address or time code display field will appear as shown below. These values are displayed when PLL is locked.

```
          Disc Type
 1. Disc Type Auto Check
 2. DVD SL 12cm
 3. DVD DL 12cm
 4. CD     12cm
 5. SACD   12cm
 6. DVD SL  8cm
 7. DVD DL  8cm
 8. CD      8cm
 9. SACD    8cm
 0. Reset SLED TILT
_    SA.------ SI.-- EMG. 00
 DVD SL 12cm
```

Display when DVD SL 12cm disc was selected

```
          Disc Type
 1. Disc Type Auto Check
 2. DVD SL 12cm
 3. DVD DL 12cm
 4. CD     12cm
 5. SACD   12cm
 6. DVD SL  8cm
 7. DVD DL  8cm
 8. CD      8cm
 9. SACD    8cm
 0. Reset SLED TILT
_       TC.--:--:-- EMG. 00
 CD     12cm
```

Display when CD 12cm disc was selected

[0] Reset SLED TILT	Reset the Sled and Tilt to initial position.
[1] Disk Type Check	Judge automatically the loaded disc. As the judged result is displayed at the bottom of screen, make sure that it is correct. If Disc Check Memory menu has not been executed after EEPROM default setting, the disc type cannot be judged. In this case, return to the initial menu and make a check for three types of discs (SL, DL, CD).
[2] to [9]	Select the loaded disc. The adjusted value is written to the address of selected disc. No further entry is necessary if [1] was selected.

2. Servo Control

```
        Servo Control
 1.LD       off  R.Sled FWD
 2.SP       off  L.Sled REV
 3.Focus    off  U.Tilt UP
 4.TRK.     off  D.Tilt DOWN
 5.Sled     off
 6.CLVA     off
 7.FCS.Srch off


 0.Reset SLED TILT
_    SA.------ SI.-- EMG. 00
 DVD SL 12cm
```

On this screen, the servo on/off control necessary for replay is executed. Normally, turn on each servo from 1 sequentially and when CLVA is turned on, the usual trace mode becomes active. In the trace mode, DVD sector address or CD time code is displayed. This is not displayed where the spindle is not locked.
The spindle could run overriding the control if the spindle system is faulty or RF is not present. In such a case, do not operate CLVA.

[0]	Reset SLED TILT	Reset the Sled and Tilt to initial position.
[1]	LD	Turn ON/OFF the laser.
[2]	SP	Turn ON/OFF the spindle.
[3]	Focus	Search the focus and turn on the focus.
[4]	TRK	Turn ON/OFF the tracking servo.
[5]	Sled	Turn ON/OFF the sled servo.
[6]	CLVA	Turn ON/OFF normal servo of spindle servo.
[7]	FCS. Srch	Apply same voltage as that of focus search to the focus drive to check the focus drive system.
[→]	Sled FWD	Move the sled outward. Perform this operation with the tracking servo turned off.
[←]	Sled REV	Move the sled inward. Perform this operation with the tracking servo turned off.
[↑]	Tilt UP	Move the tilt upward.
[↓]	Tilt DOWN	Move the tilt downward.

The following menus are normally not used.

3. Track/Layer Jump
4. Manual Adjustment
5. Auto Adjustment

The persons who do not know well about these menus should not use them.

6. Memory Check

```
EEPROM Data
             CD      --DVD--
ID No.00       SACD SL L0 L1
Focus Gain   xx xx  xx xx xx
TRK.  Gain   xx xx  xx xx xx
Focus Offset xx xx  xx xx xx
TRK.  Offset xx xx  xx xx xx
L.F.  Offset xx xx  xx xx xx
EQ.   Boost  xx xx  xx xx xx
Jitter       xx xx  xx xx xx
Mirror Time  xx     xx xx
_
          CLEAR: Default Set
```

This screen displays current servo adjusted data stored in the EEPROM. Though adjusted data can be initialized with the [CLEAR] key, they cannot be restored after initialization.
So, before clearing, make a note of the adjusted data.
For reference, the drive has been designed so that the gain center value is 20 and offset value is 80. Other values will be in a range of 10 to 80. If extreme value such as 00 or FF is set, adjustment will be faulty. In such a case, check for disc scratch or cable disconnection, then perform adjustment again.

```
   ## 200CHG MechaCon Menu1 ##

ENTER : Table initial
PLAY  : Disc1 Move (Chuck)
STOP  : UnChuck disc1 Door
PAUSE : SPDL On/Off
<- -> : Chucking Stop
UP    : Chucking   (Full)
DOWN  : UnChucking (Full)
jogFOR: Chucking   (Step)
jogPRV: UnChucking (Step)
_
RETURN: Exit
```

```
   ## 200CHG MechaCon Menu2 ##
ENTER : Table initial
PLAY  : Table Move Chuck
STOP  : UnChuck disc1 Door
PAUSE : Table Turn R/S/L/S
jogFWD: Table Turn (R Step)
jogPRV: Table Turn (L Step)
DIAL R: NextDisc Chuck
DIAL L: NextDisc Door
UPDOWN: Chuck/UnChuck(Full)
CLEAR : Sensor Check
_
RETURN: Exit
```

6-6. MECHA AGING

```
       ### Mecha Aging ###
Input 5Discs No (1-200)
Disc 1:_
```

Selecting item [3] from the Test Mode menu implements the mechanical aging.
Prepare five discs. Input the location number of the five discs respectively, then press the [ENTER] key.

```
       ### Mecha Aging ###
Input 5Discs No (1-200)
Disc 1:x
Disc 2:x
Disc 3:x
Disc 4:x
Disc 5:x

Press ENTER : OK
Press Other Key : One More
_
```

After the above message appears, press the [ENTER] key again. The following display appears.

```
       ### Mecha Aging ###




Press ENTER : Table Move
Press PLAY  : Start
_


Abort: STOP Key
```

Pressing the ENTER key again starts moving the disc table and the following display appears.

```
       ### Mecha Aging ###




Press ENTER : Table Move
Press PLAY  : Start

Disc No.  x_

Abort: STOP Key
```

Insert the discs in accordance with the instructions shown on the display, to the position where disc location numbers have already been input. Press the ENTER key each time after inserting a disc. When all five discs are inserted, press the PLAY button to start the mechanical aging.

```
        ### Mecha Aging ###




Count :           x
Disc No.xxx
DVD DL 12cm


Abort: STOP Key
```

The number of times of aging (aging count), disc number and disc type is displayed.
To stop the mechanical aging, press the STOP key. The following message appears.

```
       ### Mecha Aging ###




Count :           x



Press ENTER  : Table Move
Press RETURN : Exit
_
```

Pressing the ENTER key at this moment moves the disc table to the disc number position that is shown on the display as follows.

```
       ### Mecha Aging ###




Count :           x


Disc No.xxx_
Press ENTER  : Table Move
Press RETURN : Exit
_
```

Remove a disc and press the ENTER key. Remove all five discs in turn.
Press the RETURN key to return to the Test Mode menu.

6-7. EMERGENCY HISTORY

```
       ### EMG. History ###

  Laser Hours   CD  xxxxxxh
                DVD xxxxxxh

 1. xx xx xx xx  xx xx xx xx
    xx xx xx xx  xx xx xx xx

 2. xx xx xx xx  xx xx xx xx
    xx xx xx xx  xx xx xx xx
_
 Select:1-9   Scroll:UP/DOWN
(1:Last EMG.)   Exit:RETURN
```

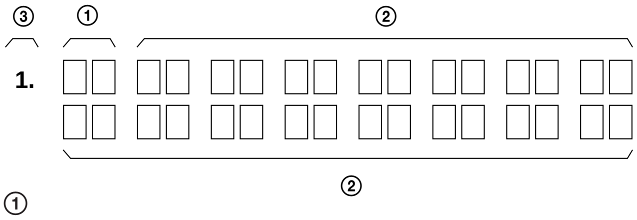
On the Test Mode Menu screen, selecting 4 displays the information such as servo emergency history. The history information rom last 1 up to 10 can be scrolled with ↑ key or ↓ key. Also, specific information can be displayed by directly entering that number with ten keys.

The upper two lines display the laser ON total hours. Data below minutes are omitted.

Clearing History Information

Clearing laser hours
Press DISPLAY and CLEAR keys in this order.
Both CD and DVD data are cleared.
Clearing emergency history
Press TITLE and CLEAR keys in this order.
Initializing set up data
Press DVD and CLEAR keys in this order.
The data have been initialized when “Set Up Initialized” message is displayed. The EMG. History screen will be restored soon.

How to see Emergency History



①: Emergency Code
②: Don't Care
These codes are used for verification of software designing.
③: Historical order 1 to 9

Emergency Codes List

10: Communication to IC001 (TK-51 board) failed.
11: Each servo for focus, tracking, and spindle is unlocked.
12: Communication to EEPROM, IC201 (MB-85 board) failed.
13: Writing of hours meter data to EEPROM, IC201 (MB-85 board) failed.
14: Communication to Servo DSP IC701 (MB-85 board) failed, or Servo DSP is faulty.
20: Initialization of tilt servo and sled servo failed. They are not placed in the initial position.
21: Tilt servo operation error
22: Syscon made a request to move the tilt servo to wrong position.
23: Sled servo operation error
24: Syscon made a request to move the sled servo to wrong position.
30: Tracking balance adjustment error
31: Tracking gain adjustment error
32: Focus balance adjustment error
33: Focus bias adjustment error
34: Focus gain adjustment error
35: Tilt servo adjustment error
36: RF equalizer adjustment error
37: RF group delay adjustment error
38: Jitter value after adaptive servo operation is too large.
40: Focus servo does not operate.
41: With a dual layer (DL) disc, focus jump failed.50: CLV (spindle) servo does not operate.
51: Spindle does not stop.
60: With a DVD disc, Syscon made a request to seek nonexistent address.
61: With a CD disc, Syscon made a request to seek nonexistent address.
62: With a CD disc, Syscon made a request to seek nonexistent track No. and index No.
63: With a DVD disc, seeking of target address failed.
64: With a CD disc, seeking of target address failed.
65: With a CD disc, seeking of target index failed.
70: With a DVD disc, physical information data could not be read.
71: With a CD disc, TOC data could not be read.
80: Disc type judgment failed.
81: As disc type judgment failed, retry was repeated.
82: As disc type judgment failed, a measurement error occurred.
83: Disc type could not be judged within the specified time.
84: Illegal command code was received from Syscon.
85: Illegal command was received from Syscon.

6-8. VERSION INFORMATION

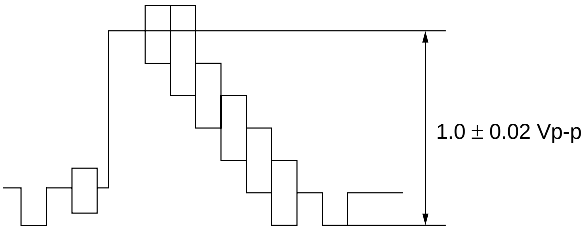
```
    ## Version Information ##

 IF con.   Ver.x.xxx (xxxx)
        Group    xx

 SYScon.   Ver.x.xxx (xxxx)
        Model    xx
        Region   xx

   Servo DSP   Ver.x.xxx

Exit : RETURN
_
```

On the Test Mode Menu screen, selecting [5] displays the ROM version and region code.
The parenthesized hexadecimal number in version field is checksum value of ROM.

6-9. VIDEO LEVEL ADJUSTMENT

On the Test Mode Menu screen, selecting [6] displays color bars for video level adjustment. During display of color bars, OSD disappears but the menu screen will be restored if pressing any key.

Measurement point	: LINE OUT VIDEO (75 Ω terminating resistance)
Measuring instrument	: Oscilloscope
Adjustment device	: RV401 on MB-85 board
Specified value	: $1.0 \pm ^{+0.04}_{-0.02}$ Vp-p



SECTION 7
MECHANICAL ADJUSTMENTS

Adjust the sensor block in the numerical order given.
7-1. TS-150 Board Position Adjustment
7-2. SO-11 Board Position Adjustment
7-3. Disc Sensor Level Adjustment
7-4. Disc/Table Sensor Check

7-1. TS-150 BOARD POSITION ADJUSTMENT

Adjustment Procedure:

1. Enter the test mode. Select “2. Drive Manual Operation” from the test menu.
2. Select “8. 200CHG MechaCon 2” from the operation menu.
3. Press the PLAY button. Input Disc No. 112. Press the ENTER button. The chucking operation is completed at the position of Disc No. 112.
4. Move the disc table with hands.
5. Confirm that the screw that fixes the plate metal of the TS-150 board is positioned in nearly the center of the screw hole.
6. Loosen the screw that fixes the plate metal of the TS-150 board.
7. Observe the T. SENS1 signal a pin-7 of CN704 on the TS-150 board. Make an attempt to move the position of the TS-150 board. Tighten the fixing screw at the position where the waveform changes when the TS-150 board is moved.

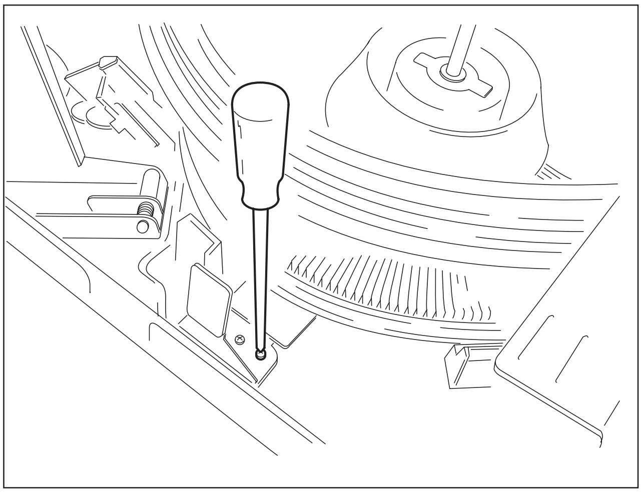


Fig. 7-1

7-2. SO-11 BOARD POSITION ADJUSTMENT

Adjustment Procedure:

1. Enter the test mode. Select “2. Drive Manual Operation” from the test menu.
2. Select “8. 200CHG MechaCon 2” from the operation menu.
3. Press the ↓ button to release chucking.
4. Press the PAUSE button so that the disc table rotates continuously in the clockwise direction.
5. Loosen the screw fixing the SO-11 board.
6. Turn RV701 on the TS-150 board fully counter-clockwise.
7. Observe the SI-E signal, T. SENS2 signal and T. SENS3 signal at pins-2, -4 and -5 of CN704 on TS-150 board. Confirm that the phase difference between the peak position of the SI-E signal and the center position of the period when both the T. SENS2 signal and T. SENS3 signal are High, is 2.5 ms or less. If this specification is not satisfied, adjust the position of the TS-150 board until the above-described specification is satisfied.
8. Tighten the screw fixing the SO-11 board.

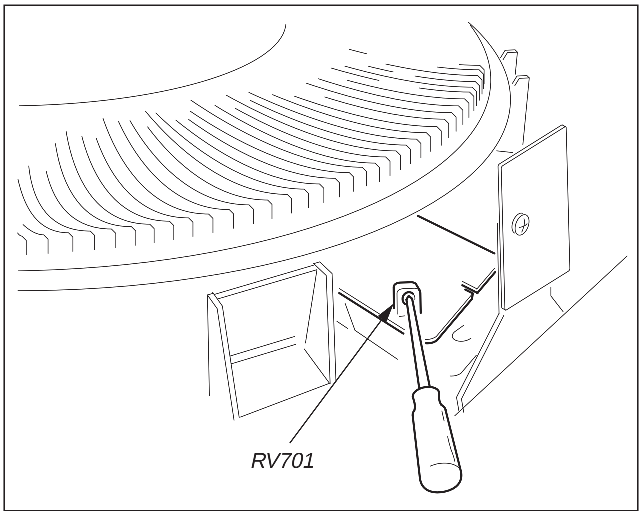


Fig. 7-2

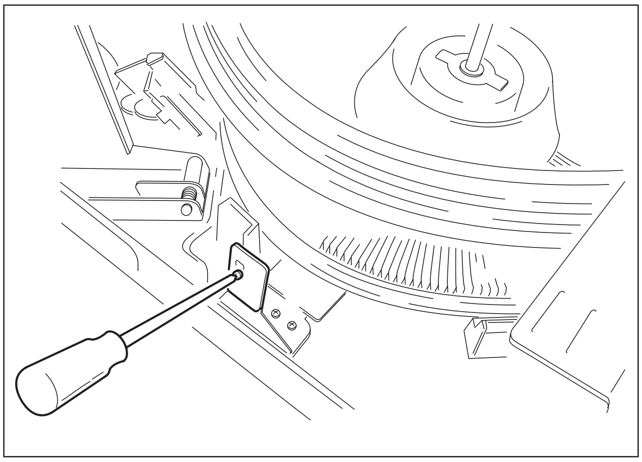


Fig. 7-3

Adjust the position (angle) of the TS-150 board until the top peak of the SI-E signal (pin-2 of CN704 on TS-150 board) is positioned at the center of the period when both the T. SENS2 signal and T. SENS3 signal are High.

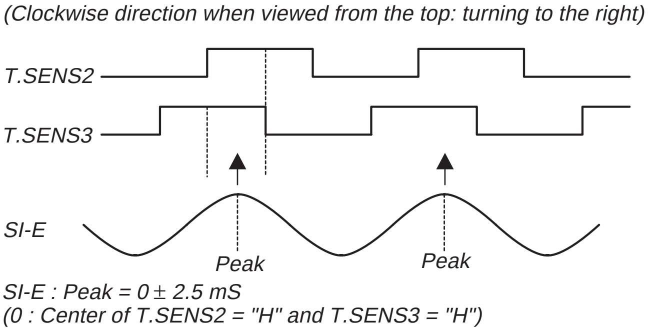


Fig. 7-4

7-3. DISC SENSOR LEVEL ADJUSTMENT

Adjustment Procedure:

1. Enter the test mode. Select "2. Drive Manual Operation" from the test menu.
2. Select "8. 200CHG MechaCon 2" from the operation menu.
3. Press the ↓ button to release chucking.
4. Press the PAUSE button so that the disc table rotates continuously in the clockwise direction.
5. Observe the SI-E signal at pins-2, -4 and -5 of CN704 on TS-150 board. Adjust RV701 on the TS-150 board so that the duty ratio of the waveform becomes 4:1.

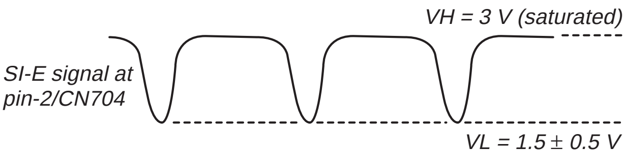


Fig. 7-5

7-4. DISC/TABLE SENSOR CHECK

Adjustment Procedure:

1. Enter the test mode. Select "2. Drive Manual Operation" from the test menu.
2. Select "8. 200CHG MechaCon 2" from the operation menu.
3. Remove the disc from the disc table.
4. Confirm that, when you press the CLEAR button, the Disc Count indicates 0, and the disc table rotates so that the Disc No. 2 comes to the front of the door and stops.

SECTION 8
ELECTRICAL ADJUSTMENT

In making adjustment, refer to 8-3. Adjustment Related Parts Arrangement.

This section describes procedures and instructions necessary for adjusting electrical circuits in this set.

Instruments required:
1) Color monitor TV
2) Oscilloscope 1 or 2 phenomena, band width over 100 MHz, with delay mode
3) Frequency counter (over 8 digits)
4) Digital voltmeter
5) Standard commander (RMT-D113A)
6) DVD reference disc
   HLX-501 (J-6090-071-A) (dual layer) (NTSC)
   HLX-503 (J-6090-069-A) (single layer) (NTSC)
   HLX-504 (J-6090-088-A) (single layer) (NTSC)
   HLX-505 (J-6090-089-A) (dual layer) (NTSC)
7) SACD reference disc
   HLXA-509 (J-6090-090-A)

8-1. POWER SUPPLY ADJUSTMENT

1. HS-030SU Board

Mode	E-E
Instrument	Digital voltmeter
+5 V Check	
Test point	CN202 pin 5
Specification	5.0 ± 0.2 Vdc
+3.3 V Check	
Test point	CN202 pin 7
Specification	3.3 ± 0.2 Vdc
EVER+5 V Check	
Test point	CN203 pin 2
Specification	5.0 ± 0.2 Vdc
P_CONT Check	
Test point	CN203 pin 1
Specification	4V – 5 Vdc
A +12 V Check	
Test point	CN202 pin 1
Specification	$9.5+^{-0.5}_{+1.5}$ Vdc
–12 V Check	
Test point	CN203 pin 5
Specification	–12.0 ± 1.0 Vdc
M +12 V Check	
Test point	CN202 pin 2
Specification	12.0 ± 1.0 Vdc

Checking method:
1) Confirm that each voltage satisfies the specification.

8-2. ADJUSTMENT OF VIDEO SYSTEM

1. Video Level Adjustment (MB-85 BOARD)

<Purpose>

This adjustment is made to satisfy the NTSC standard, and if not adjusted correctly, the brightness will be too large or small.

Mode	Video level adjustment in test mode
Signal	Color bars
Test point	LINE OUT (VIDEO) connector
	(75 Ω terminated)
Instrument	Oscilloscope
Adjusting element	RV401
Specification	$1.0 \pm ^{+0.04}_{-0.02}$ Vp-p

Adjusting method:

1) In the test mode initial menu “6” Video Level Adjustment, set so that color bars are generated.
2) Adjust the RV401 to attain $1.0 \pm ^{+0.04}_{-0.02}$ Vp-p.

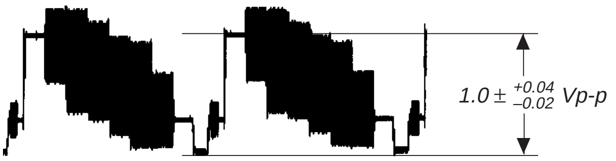


Fig. 8-1

2. S-terminal Output Check (MB-85 BOARD)

<Purpose>

Check S-terminal video output. If it is incorrect, pictures will not be displayed correctly in spite of connection to the TV with a S-terminal cable.

Mode	Video level adjustment in test mode
Signal	Color bars
Test point	S VIDEO OUT (S-Y) connector
	(75 Ω terminated)
Instrument	Oscilloscope
Specification	1.0 ± 0.05 Vp-p

Checking method:

1) In the test mode initial menu “6” Video Level Adjustment, set so that color bars are generated.
2) Confirm that the S-Y level is 1.0 ± 0.05 Vp-p.

Fig. 8-2

3. Checking Component Video Output B-Y (MB-85 BOARD)

<Purpose>

This checks component video output B-Y. If it is incorrect, cor-rect colors will not be displayed when connected to, for instance, projector.

Mode	Video level adjustment in test mode
Signal	Color bars
Test point	COMPONENT VIDEO OUT (B-Y) connector (75 Ω terminated)
Instrument	Oscilloscope
Specification	700 ± 50 mVp-p

Checking method:

1) Confirm that the B-Y level is 700 ± 50 mVp-p.

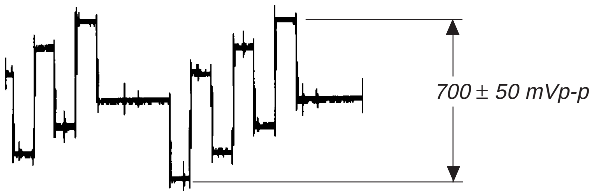


Fig. 8-3

4. Checking Component Video Output R-Y (MB-85 BOARD)

<Purpose>

This checks component video output R-Y. If it is incorrect, cor-rect colors will not be displayed when connected to, for instance, projector.

Mode	Video level adjustment in test mode
Signal	Color bars
Test point	COMPONENT VIDEO OUT (R-Y)
	connector (75 Ω terminated)
Instrument	Oscilloscope
Specification	700 ± 50 mVp-p

Checking method:

1) Confirm that the R-Y level is 700 ± 50 mVp-p.

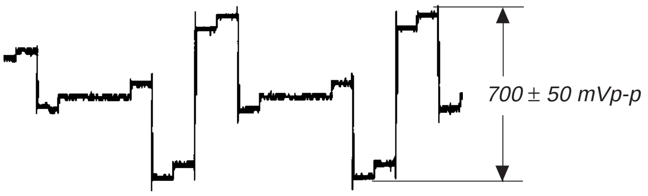


Fig. 8-4

5. Checking Component Video Output Y (MB-85 BOARD)

<Purpose>

This checks component video output Y. If it is incorrect, correct brightness will not be attained when connected to, for instance, projector.

Mode	Video level adjustment in test mode
Signal	Color bars
Test point	COMPONENT VIDEO OUT (Y)
	connector (75 W terminated)
Instrument	Oscilloscope
Specification	1.0 ± 0.05 Vp-p

Checking method:

1) Confirm that the Y level is 1.0 ± 0.05 Vp-p.

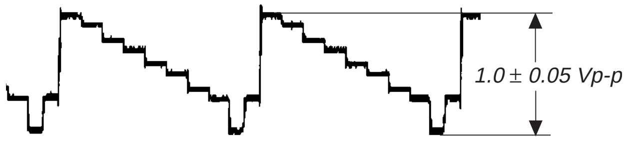


Fig. 8-5

6. Checking S Video Output S-C (MB-85 BOARD)

<Purpose>

This checks whether the S-C satisfies the NTSC Standard. If it is not correct, the colors will be too dark or light.

Mode	Video level adjustment in test mode
Signal	Color bars
Test point	S VIDEO OUT (S-C) connector (75 Ω terminated)
Instrument	Oscilloscope
Specification	286 ± 30 mVp-p (NTSC)

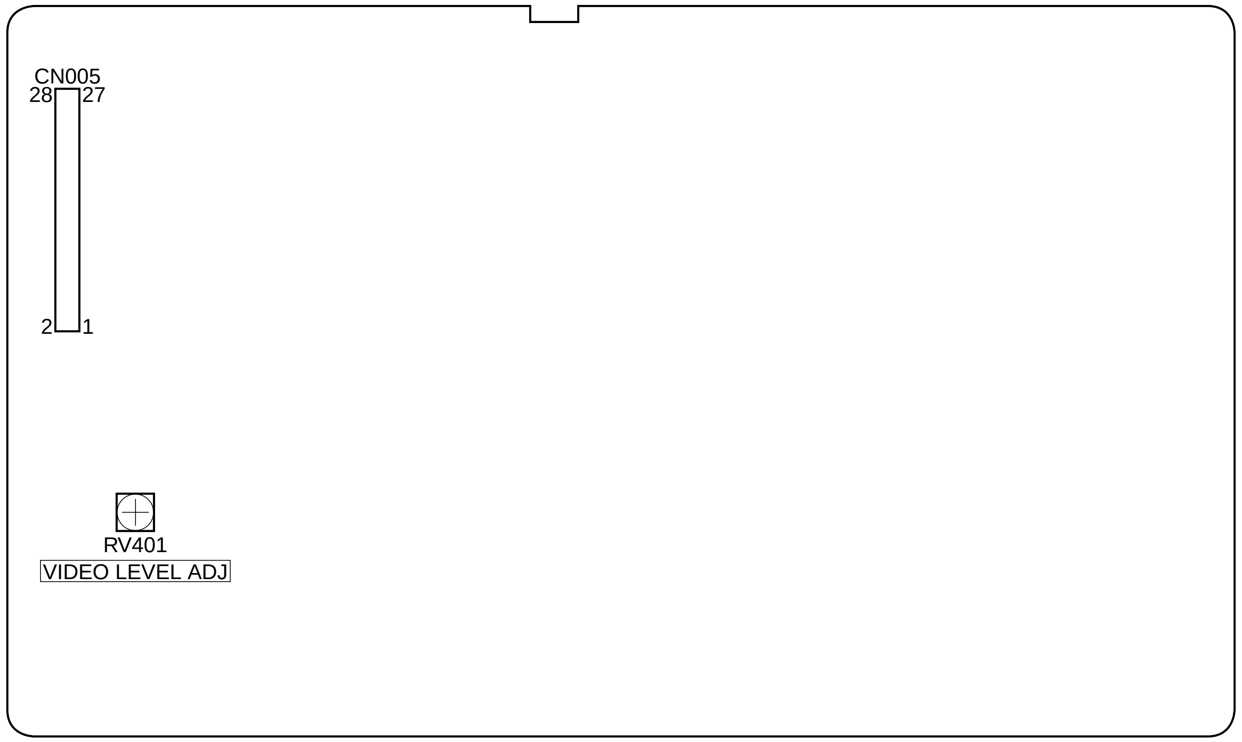
Checking method:

1) In the test mode initial menu "6" Video Level Adjustment, set so that color bars are generated.
2) Confirm that the S-C burst is 286 ± 30 mVp-p.

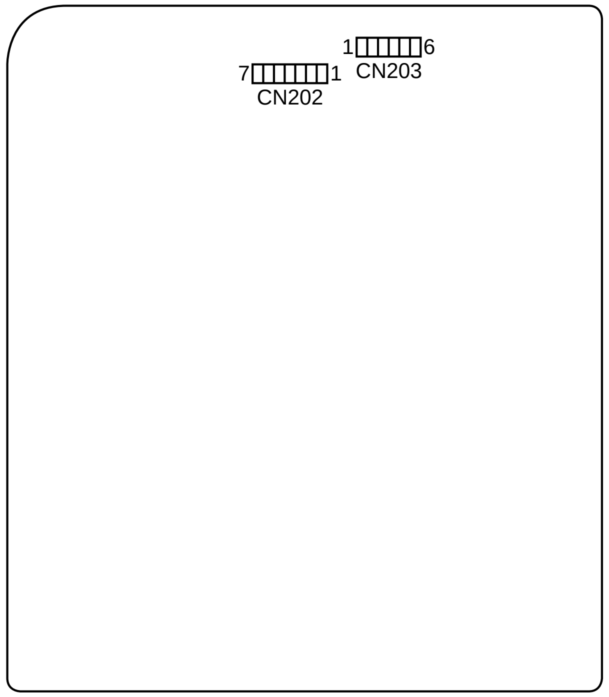
Fig. 8-6

8-3. ADJUSTMENT RELATED PARTS ARRANGEMENT

MB-85 BOARD (SIDE A)



HS-030SU BOARD (SIDE A)



SECTION 9
REPAIR PARTS LIST

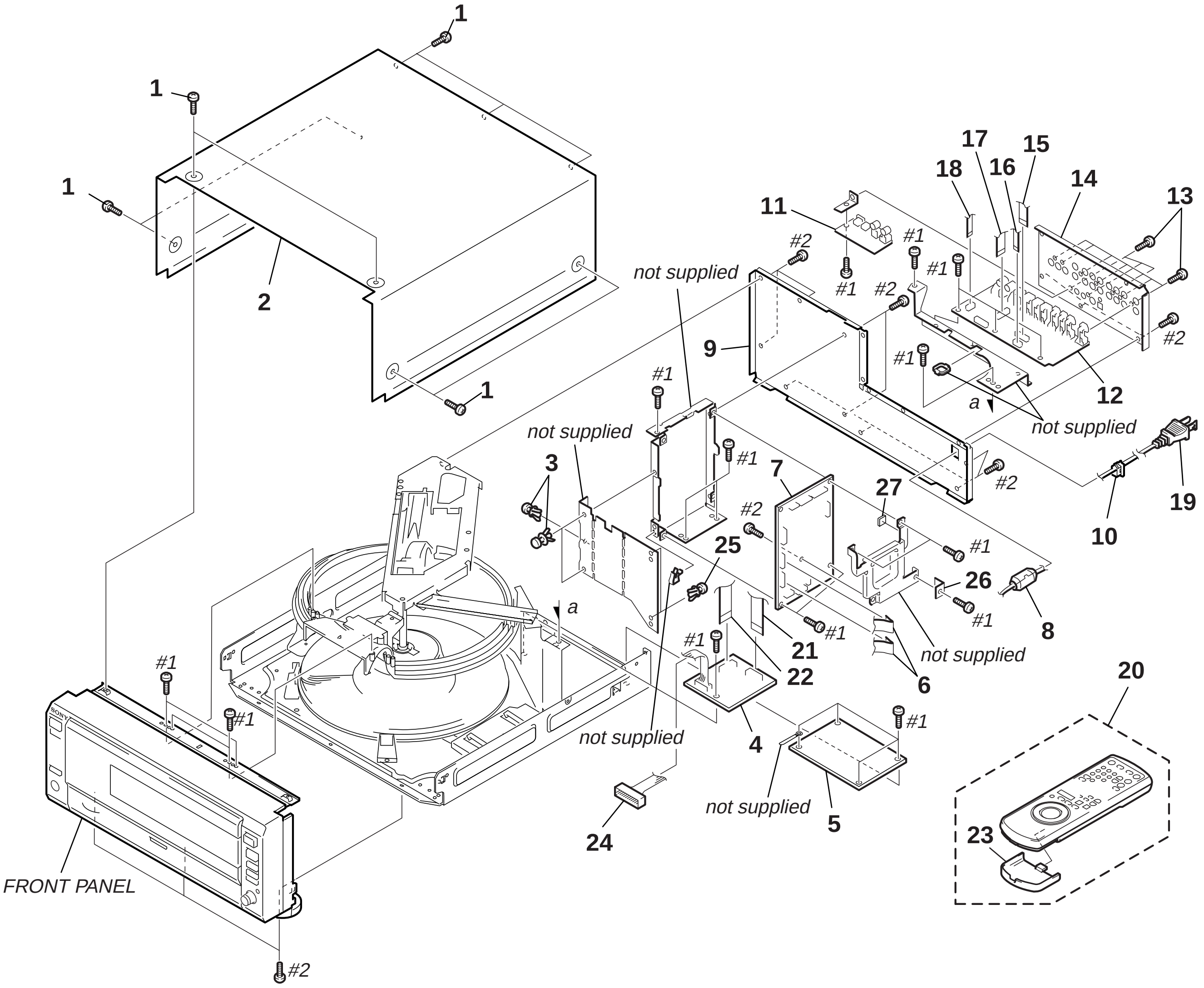
9-1. EXPLODED VIEWS

NOTE:
- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

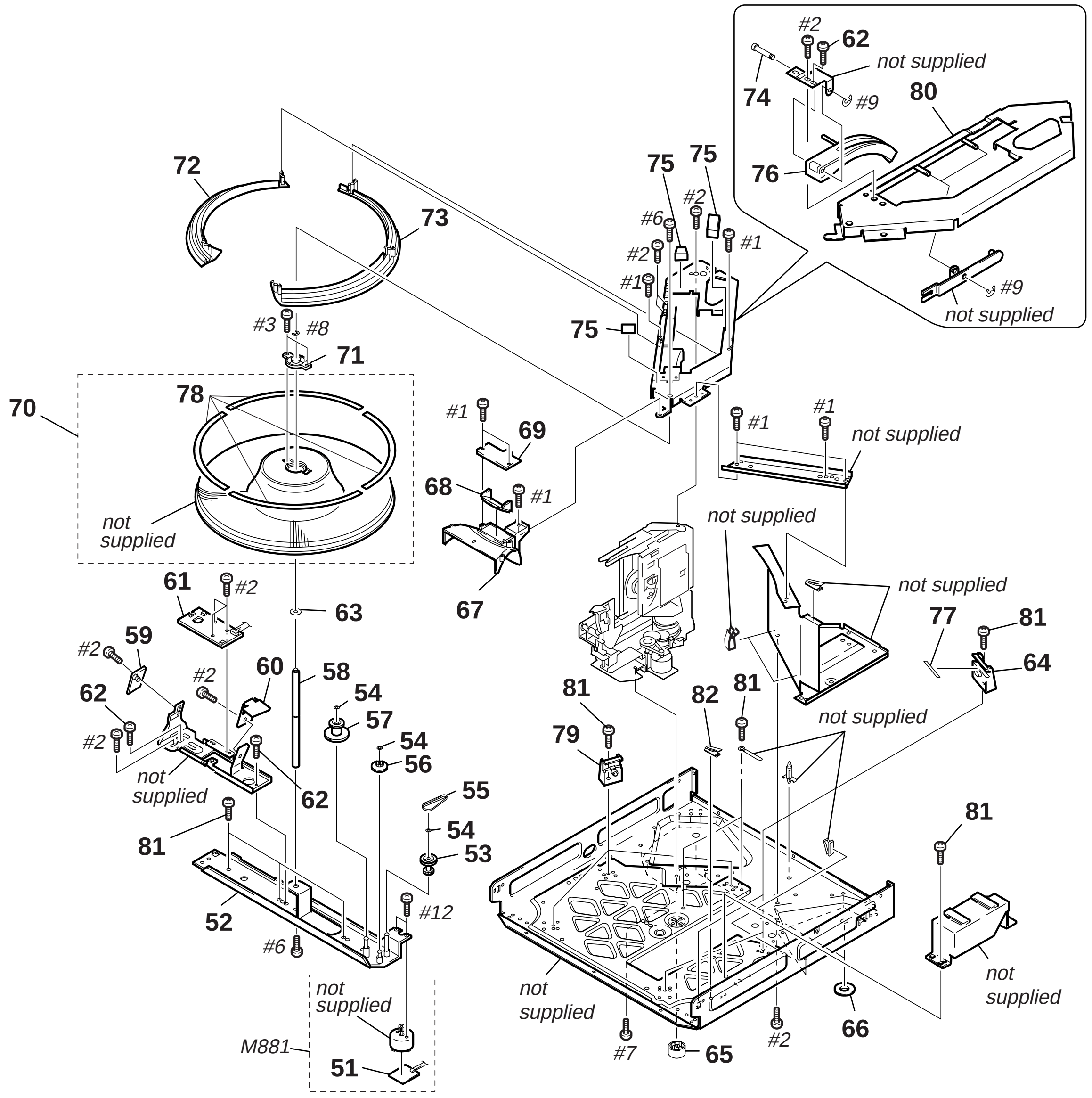
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

9-1-1. CASE AND REAR PANEL SECTION



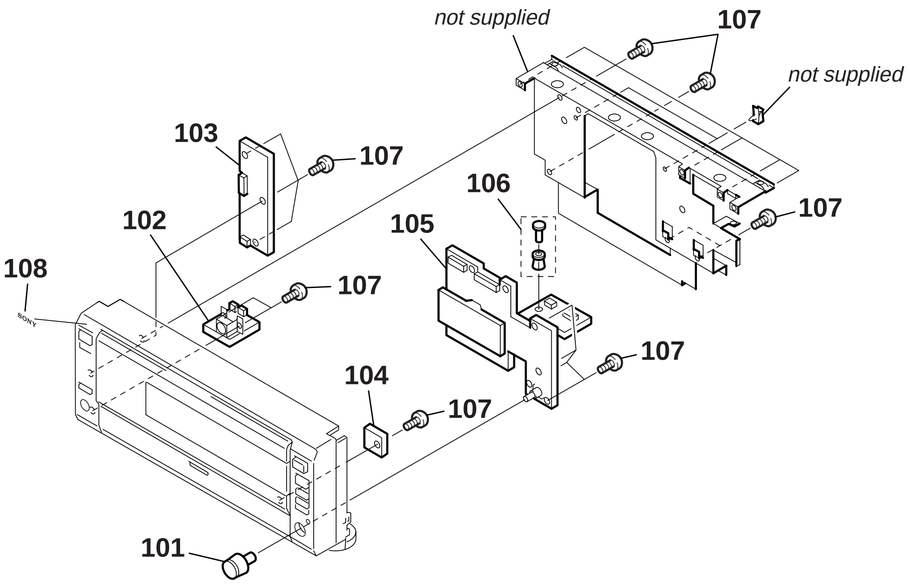
Ref. No.	Part No.	Description	Remarks
1	3-710-901-41	SCREW, TAPPING	
2	4-982-946-51	CASE	
3	3-531-576-01	RIVET	
* 4	A-6065-358-A	CK-82 BOARD, COMPLETE	
⚠ 5	1-468-359-32	POWER BLOCK	
6	1-791-203-11	CABLE, FLEXIBLE FLAT (FTM-7)	
* 7	A-6065-360-A	MB-85 BOARD, COMPLETE	
8	1-500-386-11	FILTER, CLAMP (FERRITE CORE)	
9	3-057-028-01	PANEL, BACK	
10	4-966-267-11	BUSHING (FBS001), CORD	
* 11	A-6065-361-A	CO-25 BOARD, COMPLETE	
* 12	A-6065-362-A	AU-216 BOARD, COMPLETE	
13	3-970-608-51	SUMITITE (B3) (RING), +BV	
14	3-057-029-01	PLATE, JACK	
15	1-791-205-11	CABLE, FLEXIBLE FLAT (FMA-13)	
16	1-791-206-11	CABLE, FLEXIBLE FLAT (FAC-9)	
17	1-791-204-11	CABLE, FLEXIBLE FLAT (FMA-12)	
18	1-790-165-11	CABLE, FLEXIBLE FLAT (FMA-9)	
⚠ 19	1-783-531-31	CORD, POWER	
20	1-418-321-51	COMMANDER, STANDARD(RMT-D113A)	
21	1-791-207-11	CABLE, FLEXIBLE FLAT (FMC-12)	
22	1-791-208-11	CABLE, FLEXIBLE FLAT (FFM-30)	
23	3-055-539-01	COVER BATTERY (FOR RMT-D113A)	
24	1-793-444-11	HOUSING, PLUG (TRANSLATION)15P	
25	4-053-543-01	RIVET, NYLON	
26	3-054-650-01	SPRING, EMC	
27	3-682-057-11	SPACER (SMALL)	

9-1-2. DISC TABLE SECTION



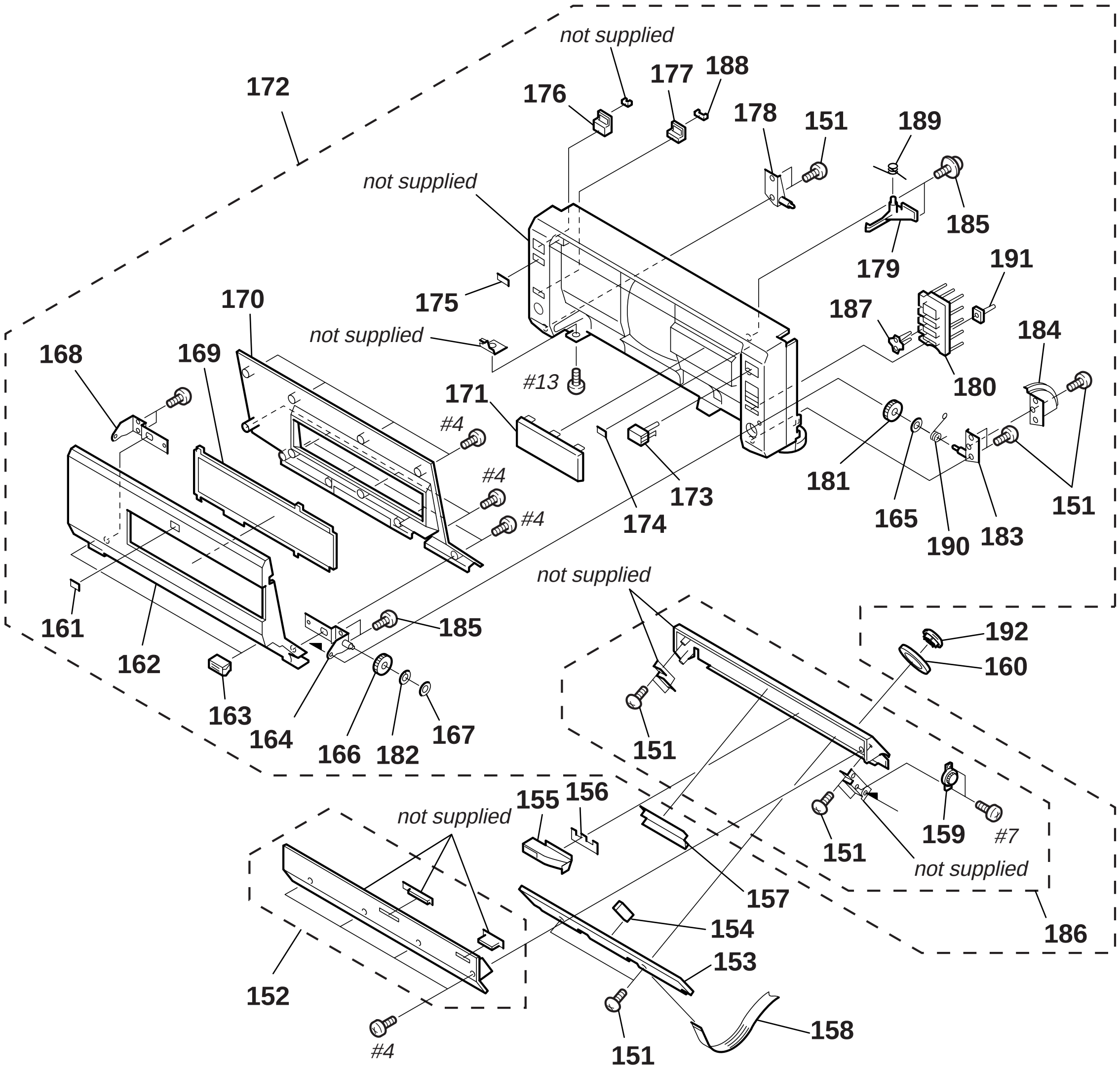
Ref. No.	Part No.	Description	Remarks
* 51	A-6065-372-A	TM-126 BOARD, COMPLETE	
52	X-4947-230-1	BRACKET (TABLE) ASSY	
53	X-4947-607-1	GEAR (PULLEY) ASSY	
54	3-325-697-21	WASHER	
55	4-962-822-01	BELT (TIMING)	
56	4-982-893-01	GEAR (CENTER 2)	
57	4-982-891-01	GEAR (TABLE)	
58	4-982-892-01	SHAFT (CENTER)	
* 59	A-6065-371-A	SO-11 BOARD, COMPLETE	
* 60	A-6065-370-A	SI-24 BOARD, COMPLETE	
* 61	A-6065-369-A	TS-150 BOARD, COMPLETE	
62	3-356-601-11	SCREW, STEP	
63	3-701-446-21	WASHER, 8	
64	X-4947-229-1	HOLDER (ROLLER) ASSY	
65	4-931-169-01	FOOT	
66	4-983-279-01	CUSHION (RF)	
* 67	4-982-804-01	COVER (DISC)	
68	4-982-805-01	INDICATOR (INTERNAL)	
* 69	A-6065-359-A	LT-34 BOARD, COMPLETE	
70	X-3949-889-1	TABLE (200) ASSY	
71	4-976-471-01	BEARING (TABLE)	
* 72	4-982-803-01	RING (B)	
* 73	4-982-802-01	RING (A)	
74	4-982-870-01	SHAFT (GUIDE FULCRUM)	
75	4-985-553-11	CUSHION	
76	4-982-862-01	GUIDE (DISC T)	
77	4-985-574-01	SPACER (ROLLER)	
78	3-057-045-01	PLATE (ALL), INDICATION	
79	X-4947-606-1	HOLDER (ROLLER 2) ASSY	
80	X-3949-887-1	REINFORCEMENT ASSY	
81	3-970-608-01	SUMITITE (B3), +BV	
* 82	4-316-015-00	HOLDER, WIRE	
M881	A-6062-234-A	TABLE (MOTOR ASSY)	

9-1-3. FRONT PANEL SECTION-1



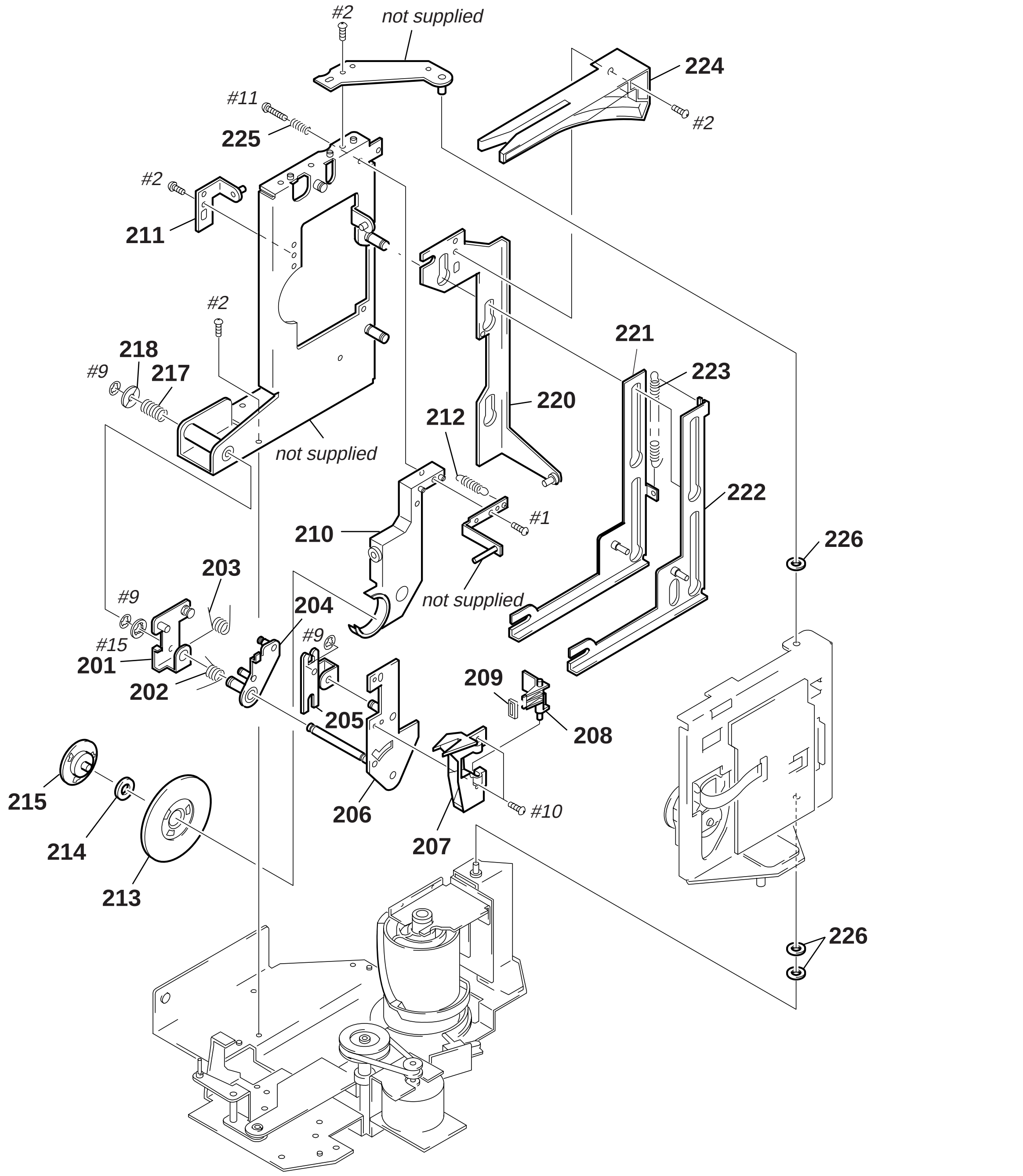
Ref. No.	Part No.	Description	Remarks
101	3-057-009-01	KNOB (ACS)	
* 102	A-6065-364-A	KB-36 BOARD, COMPLETE	
* 103	A-6065-366-A	FR-155 BOARD, COMPLETE	
* 104	A-6065-363-A	DS-87 BOARD, COMPLETE	
* 105	A-6065-368-A	FL-105 BOARD, COMPLETE	
106	3-531-576-11	RIVET	
107	4-951-620-01	SCREW (2.6X8), +BVTP	
108	4-963-404-02	EMBLEM,SONY	

9-1-4. FRONT PANEL SECTION-2



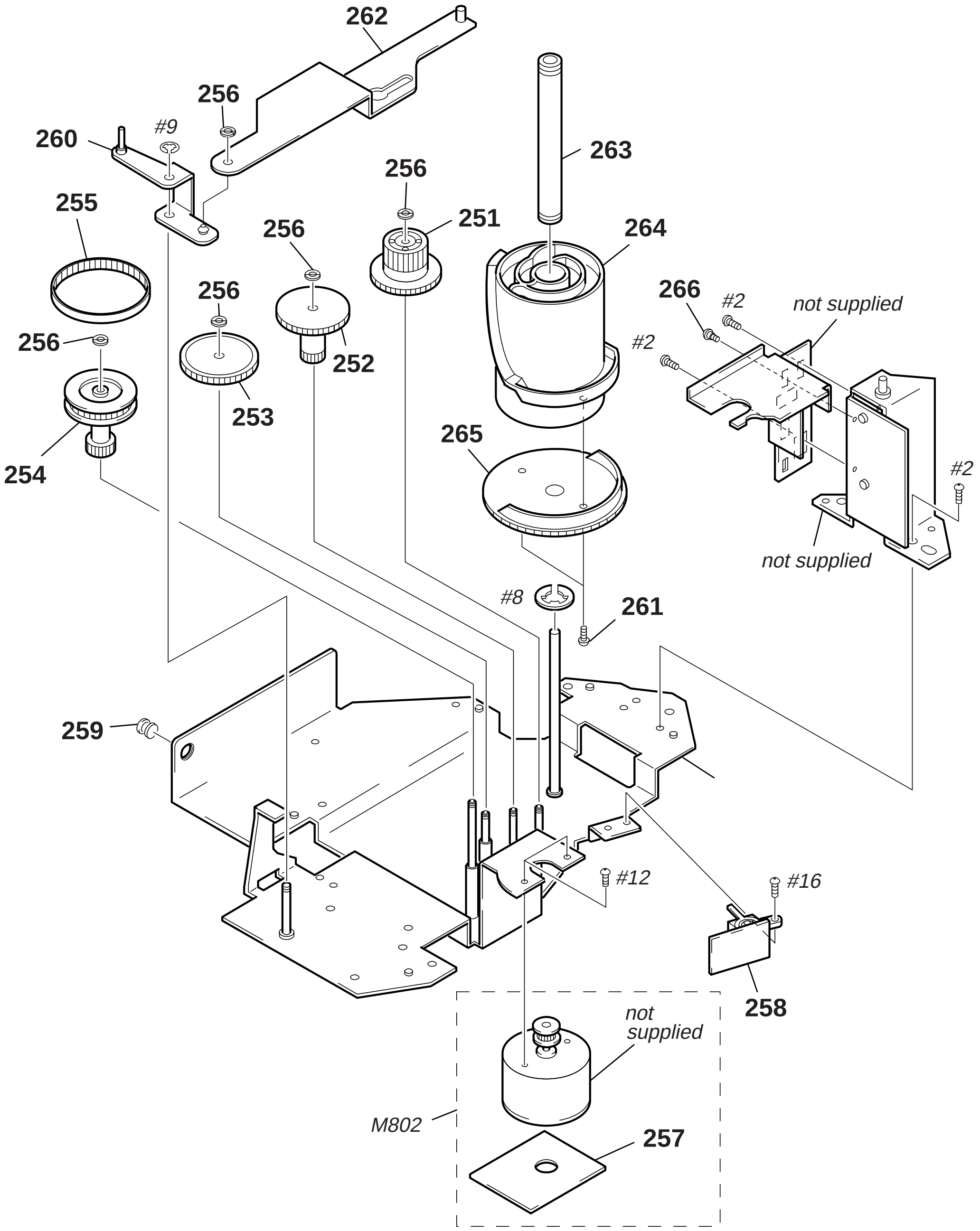
Ref. No.	Part No.	Description	Remarks
151	4-951-620-01	SCREW (2.6X8), +BVTP	
152	X-3949-891-1	PANEL (OUTER) ASSY, CONTROL	
* 153	A-6065-365-A	SW-322 BOARD, COMPLETE	
* 154	A-6065-367-A	LE-25 BOARD, COMPLETE	
155	3-057-007-01	HOUSE (INNER), LAMP	
156	3-057-005-01	INDICATOR (INNER)	
157	3-057-008-01	HOUSE (OUTER), LAMP	
158	1-791-209-11	CABLE, FLEXIBLE FLAT (FFS-8)	
159	3-973-975-31	DAMPER, OIL	
160	3-057-010-01	RING, SHUTTLE	
161	3-975-726-71	EMBLEM, DVD	
162	3-056-991-01	DOOR (F)	
163	3-950-280-01	MAGNET	
164	X-3949-886-1	DISK (RIGHT) ASSY, DOOR	
165	3-056-986-01	WASHER (5-SLT), PA	
166	3-056-982-01	GEAR (DOOR)	
167	3-382-462-11	WASHER	
168	3-056-996-01	DISK (LEFT), DOOR	
169	3-056-993-01	WINDOW (DOOR), INDICATION	
170	3-056-992-01	DOOR (R)	
171	3-056-978-01	WINDOW, INDICATION	
172	A-6062-221-A	SUB BLOCK ASSY, FRONT PANEL	
173	3-056-972-01	BUTTON, OPEN/CLOSE	
174	3-056-985-01	CUSHION (DOOR)	
175	3-974-997-31	WINDOW, REMOTE CONTROL	
176	3-056-979-01	BUTTON, POWER	
177	3-056-971-01	BUTTON, EASY PLAY	
178	X-3949-885-1	PLATE (LEFT) ASSY,DOOR FULCRUM	
179	3-056-976-01	LEVER, DOOR LOCK	
180	3-056-970-01	BUTTON, FUNCTION	
181	3-056-983-01	GEAR (FULCRUM SHAFT)	
182	3-701-441-11	WASHER	
183	X-3949-884-1	PLATE (RIGHT) ASSY, FULCRUM	
184	3-056-981-01	RACK	
185	4-933-134-01	SCREW (+PTPWH M2.6X6)	
186	A-6062-223-A	PANEL BLOCK ASSY, CONTROL	
187	3-056-973-01	PLATE (A), LIGHT GUIDE	
188	3-056-975-01	PLATE (C), LIGHT GUIDE	
189	3-056-977-01	SPRING, TORSION	
190	3-056-984-01	SPRING (A)	
191	3-056-974-01	PLATE (B), LIGHT GUIDE	
192	3-057-011-01	STICK, CURSOR	

9-1-5. MECHANISM DECK SECTION-1



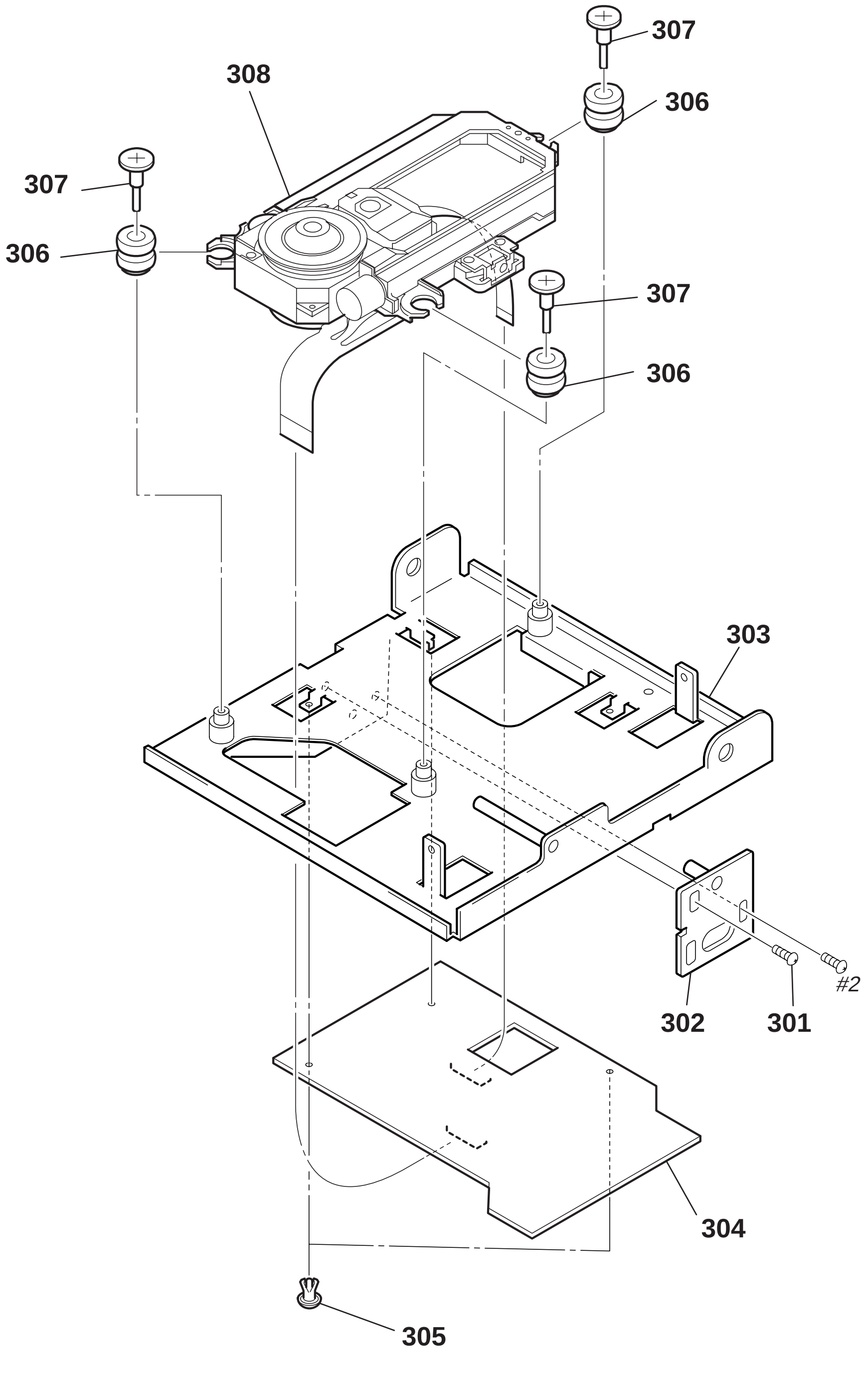
Ref. No.	Part No.	Description	Remarks
201	X-4947-241-1	LEVER (C) ASSY	
202	4-982-882-01	SPRING (LIMITTER), TORSION	
203	3-057-906-01	SPRING FOR HOLDER 90	
204	X-4947-239-1	LIMITTER (A) ASSY	
205	4-982-853-01	LEVER (B)	
206	X-4947-240-1	LEVER (A) ASSY	
207	3-057-907-01	DISC-HOLDER (BASE)	
208	4-982-855-01	HOLDER (DISC B)	
209	4-982-856-01	PAD	
210	4-976-458-01	HOLDER (MAGNET)	
211	X-4946-326-1	HOLDER (CLAMP) ASSY	
212	4-983-777-01	SPRING (MG), TENSION	
213	3-057-014-01	PULLEY (A)	
214	3-057-016-01	YOKE	
215	3-057-015-01	PULLEY (B)	
217	4-983-319-01	SPRING (THRUST), COMPRESSION	
* 218	4-976-456-01	WASHER (STOPPER)	
220	X-4947-242-1	SLIDER (C) ASSY	
221	X-4947-238-1	SLIDER (B) ASSY	
222	X-4947-237-1	SLIDER (A) ASSY	
223	4-982-880-01	SPRING (SLIDER A),TENSION	
* 224	4-982-863-01	GUIDE (DISC P)	
225	3-938-588-01	SPRING, COMPRESSION	
226	3-701-441-21	WASHER	

9-1-6. MECHANISM DECK SECTION-2



Ref. No.	Part No.	Description	Remarks
251	4-976-465-01	GEAR (LOADING 1)	
252	4-976-466-01	GEAR (LOADING 2)	
253	4-982-893-01	GEAR (CENTER 2)	
254	X-4947-607-1	GEAR (PULLEY) ASSY	
255	4-982-867-01	BELT (TIMING)	
256	3-325-697-21	WASHER	
* 257	A-6065-374-A	LM-58 BOARD, COMPLETE	
* 258	A-6065-373-A	LS-52 BOARD, COMPLETE	
259	3-489-073-00	SCREW, THRUST	
260	X-4947-227-1	LEVER (STOPPER) ASSY	
261	4-951-291-01	SCREW	
262	X-4947-234-1	SLIDER (LOCK) ASSY	
263	4-982-857-01	BEARING (CAM)	
264	4-982-860-01	CAM (A)	
265	4-982-861-01	CAM (B)	
266	3-356-601-12	SCREW, STEP	
M802	A-6062-239-A	MOTOR ASSY, LOADING	

9-1-7. MECHANISM DECK SECTION-3



Ref. No.	Part No.	Description	Remarks
301	3-356-601-12	SCREW, STEP	
302	X-4947-244-1	SLIDER (BU ADJUSTMENT) ASSY	
303	X-3949-888-1	HOLDER ASSY, BU	
* 304	A-6065-275-A	TK-51 BOARD, COMPLETE	
305	3-531-576-11	RIVET	
306	3-057-023-01	INSULATOR (RB)	
307	4-981-923-01	SCREW (M), STEP	
⚠308	8-820-081-03	OPTICAL PICK-UP (KHM-220AAA/J1RP)	

Note :	Note :
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

9-2. ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- CAPACITORS:
  uF: μF
- RESISTORS
  All resistors are in ohms.
  METAL: metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F: nonflammable
- COILS
  uH: μH

When indicating parts by reference number, please include the board name.

- SEMICONDUCTORS
  In each case, u: μ, for example:
  uA...: μA... , uPA... , μPA... ,
  uPB... , μPB... , uPC... , μPC... ,
  uPD..., μPD...

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description			Remarks
*	A-6065-362-A	AU-216 BOARD, COMPLETE			
		**********************			
					(Ref.No.: 1,000Series)
		< CAPACITOR >			
C302	1-126-926-11	ELECT	1000uF	20%	10V
C303	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C304	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C305	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C306	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C307	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C308	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C309	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C310	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C311	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C312	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C313	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C314	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C315	1-126-935-11	ELECT	470uF	20%	6.3V
C316	1-104-665-11	ELECT	100uF	20%	10V
C317	1-126-935-11	ELECT	470uF	20%	6.3V
C318	1-104-665-11	ELECT	100uF	20%	10V
C319	1-126-935-11	ELECT	470uF	20%	6.3V
C320	1-104-665-11	ELECT	100uF	20%	10V
C321	1-104-665-11	ELECT	100uF	20%	10V
C322	1-104-665-11	ELECT	100uF	20%	10V
C323	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C324	1-126-935-11	ELECT	470uF	20%	6.3V
C325	1-126-935-11	ELECT	470uF	20%	6.3V
C326	1-104-664-11	ELECT	47uF	20%	16V
C327	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C328	1-104-664-11	ELECT	47uF	20%	16V
C329	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C331	1-163-233-11	CERAMIC CHIP	18PF	5%	50V
C332	1-163-233-11	CERAMIC CHIP	18PF	5%	50V
C334	1-163-233-11	CERAMIC CHIP	18PF	5%	50V
C335	1-163-233-11	CERAMIC CHIP	18PF	5%	50V
C336	1-163-233-11	CERAMIC CHIP	18PF	5%	50V
C337	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C338	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C346	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C347	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C348	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C349	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C350	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C351	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C352	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C353	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C431	1-104-664-11	ELECT	47uF	20%	16V
C432	1-104-664-11	ELECT	47uF	20%	16V
C433	1-104-665-11	ELECT	100uF	20%	25V
C434	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C435	1-104-665-11	ELECT	100uF	20%	25V
C436	1-163-131-00	CERAMIC CHIP	390PF	5%	50V
C437	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C438	1-163-131-00	CERAMIC CHIP	390PF	5%	50V
C439	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C440	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C442	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C443	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C447	1-130-495-00	MYLAR	0.1uF	5%	50V
C447	1-136-850-11	FILM	0.1uF	5%	63V
C448	1-104-664-11	ELECT	47uF	20%	16V
C449	1-104-664-11	ELECT	47uF	20%	16V
C450	1-130-495-00	MYLAR	0.1uF	5%	50V
C450	1-136-850-11	FILM	0.1uF	5%	63V
C501	1-104-664-11	ELECT	47uF	20%	16V
C502	1-104-664-11	ELECT	47uF	20%	16V
C503	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C504	1-163-131-00	CERAMIC CHIP	390PF	5%	50V
C505	1-163-131-00	CERAMIC CHIP	390PF	5%	50V
C506	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C507	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C508	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C509	1-130-495-00	MYLAR	0.1uF	5%	50V
C509	1-136-850-11	FILM	0.1uF	5%	63V
C512	1-130-495-00	MYLAR	0.1uF	5%	50V
C512	1-136-850-11	FILM	0.1uF	5%	63V
C513	1-104-664-11	ELECT	47uF	20%	16V
C514	1-104-664-11	ELECT	47uF	20%	16V
C521	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C522	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C523	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C524	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C525	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C526	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C541	1-104-664-11	ELECT	47uF	20%	16V
C542	1-104-664-11	ELECT	47uF	20%	16V
C543	1-163-130-00	CERAMIC CHIP	360PF	5%	50V
C544	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V

Ref. No.	Part No.	Description			Remarks
C545	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C546	1-163-130-00	CERAMIC CHIP	360PF	5%	50V
C547	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C548	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C549	1-104-664-11	ELECT	47uF	20%	16V
C550	1-104-664-11	ELECT	47uF	20%	16V
C571	1-104-664-11	ELECT	47uF	20%	16V
C572	1-104-664-11	ELECT	47uF	20%	16V
C573	1-163-130-00	CERAMIC CHIP	360PF	5%	50V
C574	1-163-020-00	CERAMIC CHIP	0.0082uF	10%	50V
C575	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C576	1-163-011-11	CERAMIC CHIP	0.0015uF	10%	50V
C577	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C578	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C579	1-104-664-11	ELECT	47uF	20%	16V
C580	1-104-664-11	ELECT	47uF	20%	16V
		< CONNECTOR >			
CN301	1-785-698-11	CONNECTOR, FFC/FPC 28P			
CN302	1-785-695-11	CONNECTOR, FFC/FPC 13P			
CN303	1-785-694-11	CONNECTOR, FFC/FPC 7P			
* CN304	1-568-935-11	PIN, CONNECTOR 8P			
CN305	1-793-481-11	CONNECTOR, FFC/FPC 9P			
		< DIODE >			
D301	8-719-988-61	DIODE 1SS355TE-17			
D304	8-719-067-59	DIODE MAZ9120D0LS0-TX/L			
D305	8-719-067-59	DIODE MAZ9120D0LS0-TX/L			
D306	8-719-067-59	DIODE MAZ9120D0LS0-TX/L			
D307	8-719-067-59	DIODE MAZ9120D0LS0-TX/L			
D308	8-719-988-61	DIODE 1SS355TE-17			
D309	8-719-988-61	DIODE 1SS355TE-17			
D311	8-719-988-61	DIODE 1SS355TE-17			
D431	8-719-914-44	DIODE DAP202K-T-146			
D525	8-719-914-44	DIODE DAP202K-T-146			
D551	8-719-914-44	DIODE DAP202K-T-146			
D591	8-719-914-44	DIODE DAP202K-T-146			
		< TERMINAL >			
* ET301	1-537-738-21	TERMINAL, EARTH			
		< FERRITE BEAD >			
FB305	1-414-553-11	FERRITE	0UH		
FB306	1-414-553-11	FERRITE	0UH		
FB307	1-414-553-11	FERRITE	0UH		
FB308	1-414-553-11	FERRITE	0UH		
FB310	1-414-553-11	FERRITE	0UH		
FB311	1-414-553-11	FERRITE	0UH		
FB312	1-414-553-11	FERRITE	0UH		
FB313	1-414-553-11	FERRITE	0UH		
FB314	1-414-553-11	FERRITE	0UH		
FB315	1-414-553-11	FERRITE	0UH		
FB316	1-414-553-11	FERRITE	0UH		
FB317	1-414-553-11	FERRITE	0UH		
FB318	1-414-553-11	FERRITE	0UH		
FB319	1-414-553-11	FERRITE	0UH		
FB320	1-414-553-11	FERRITE	0UH		

Ref. No.	Part No.	Description		Remarks
FB321	1-414-553-11	FERRITE	0UH	
FB322	1-414-553-11	FERRITE	0UH	
FB323	1-414-553-11	FERRITE	0UH	
FB324	1-414-553-11	FERRITE	0UH	
FB326	1-414-553-11	FERRITE	0UH	
FB327	1-414-553-11	FERRITE	0UH	
FB328	1-414-553-11	FERRITE	0UH	
FB329	1-414-553-11	FERRITE	0UH	
FB330	1-414-553-11	FERRITE	0UH	
FB331	1-414-553-11	FERRITE	0UH	
FB404	1-414-553-11	FERRITE	0UH	
FB405	1-414-553-11	FERRITE	0UH	
FB406	1-414-553-11	FERRITE	0UH	
FB407	1-414-553-11	FERRITE	0UH	
FB408	1-414-553-11	FERRITE	0UH	
FB409	1-414-553-11	FERRITE	0UH	
		< IC >		
IC301	8-759-701-58	IC NJM78M08FA		
IC302	8-759-982-54	IC NJM79M09FA		
IC303	8-759-563-79	IC BA7660F-E2		
IC321	8-759-563-79	IC BA7660F-E2		
IC431	8-759-909-71	IC BA4558F-E2		
IC502	8-759-909-71	IC BA4558F-E2		
IC541	8-759-909-71	IC BA4558F-E2		
IC571	8-759-909-71	IC BA4558F-E2		
		< JACK >		
J303	1-793-445-11	JACK, PIN 3P(COMPONENT VIDEO OUTPUT)		
J304	1-793-478-11	JACK, PIN 2P(AUDIO INPUT)		
J505	1-785-535-11	JACK BLOCK, PIN(LINE OUTPUT)		
J508	1-785-536-11	JACK, PIN (6P)(5.1CH OUTPUT)		
		< JUMPER RESISTOR >		
JR401	1-216-296-91	SHORT	0	
JR402	1-216-295-91	SHORT	0	
JR403	1-216-296-91	SHORT	0	
JR404	1-216-296-91	SHORT	0	
JR405	1-216-296-91	SHORT	0	
JR406	1-216-296-91	SHORT	0	
JR407	1-216-296-91	SHORT	0	
JR408	1-216-295-91	SHORT	0	
JR409	1-216-295-91	SHORT	0	
JR410	1-216-296-91	SHORT	0	
JR411	1-216-296-91	SHORT	0	
JR412	1-216-296-91	SHORT	0	
JR413	1-216-296-91	SHORT	0	
JR414	1-216-296-91	SHORT	0	
JR415	1-216-295-91	SHORT	0	
JR416	1-216-296-91	SHORT	0	
JR417	1-216-296-91	SHORT	0	
		< COIL >		
L301	1-412-953-11	INDUCTOR	15uH	
L302	1-412-953-11	INDUCTOR	15uH	
L303	1-412-953-11	INDUCTOR	15uH	
L304	1-412-953-11	INDUCTOR	15uH	
L305	1-412-953-11	INDUCTOR	15uH	

Ref. No.	Part No.	Description			Remarks
L306	1-412-953-11	INDUCTOR	15uH		
L307	1-412-963-11	INDUCTOR	100uH		
L321	1-412-963-11	INDUCTOR	100uH		
		< TRANSISTOR >			
Q301	8-729-424-08	TRANSISTOR	UN2111		
Q303	8-729-216-22	TRANSISTOR	2SB709A-QRS-TX		
Q304	8-729-421-19	TRANSISTOR	UN2213		
Q305	8-729-424-08	TRANSISTOR	UN2111		
Q306	8-729-424-08	TRANSISTOR	UN2111		
Q307	8-729-424-08	TRANSISTOR	UN2111		
Q308	8-729-424-08	TRANSISTOR	UN2111		
Q309	8-729-424-08	TRANSISTOR	UN2111		
Q310	8-729-424-08	TRANSISTOR	UN2111		
Q311	8-729-424-08	TRANSISTOR	UN2111		
Q314	8-729-424-08	TRANSISTOR	UN2111		
Q315	8-729-421-19	TRANSISTOR	UN2213		
Q316	8-729-422-27	TRANSISTOR	2SD601A-Q		
Q318	8-729-422-27	TRANSISTOR	2SD601A-Q		
Q321	8-729-421-19	TRANSISTOR	UN2213		
Q322	8-729-424-08	TRANSISTOR	UN2111		
Q431	8-729-046-97	TRANSISTOR	2SD1938(F)-T(TX).SO		
Q432	8-729-046-97	TRANSISTOR	2SD1938(F)-T(TX).SO		
Q435	8-729-046-97	TRANSISTOR	2SD1938(F)-T(TX).SO		
Q436	8-729-046-97	TRANSISTOR	2SD1938(F)-T(TX).SO		
Q503	8-729-046-97	TRANSISTOR	2SD1938(F)-T(TX).SO		
Q504	8-729-046-97	TRANSISTOR	2SD1938(F)-T(TX).SO		
Q543	8-729-046-97	TRANSISTOR	2SD1938(F)-T(TX).SO		
Q544	8-729-046-97	TRANSISTOR	2SD1938(F)-T(TX).SO		
Q573	8-729-046-97	TRANSISTOR	2SD1938(F)-T(TX).SO		
Q574	8-729-046-97	TRANSISTOR	2SD1938(F)-T(TX).SO		
		< RESISTOR >			
R301	1-216-042-00	METAL CHIP	510	5%	1/10W
R302	1-216-042-00	METAL CHIP	510	5%	1/10W
R303	1-216-042-00	METAL CHIP	510	5%	1/10W
R304	1-216-021-00	METAL CHIP	68	5%	1/10W
R305	1-216-073-00	METAL CHIP	10K	5%	1/10W
R306	1-216-021-00	METAL CHIP	68	5%	1/10W
R307	1-216-073-00	METAL CHIP	10K	5%	1/10W
R308	1-216-021-00	METAL CHIP	68	5%	1/10W
R309	1-216-097-91	RES,CHIP	100K	5%	1/10W
R310	1-216-042-00	METAL CHIP	510	5%	1/10W
R311	1-216-042-00	METAL CHIP	510	5%	1/10W
R312	1-216-042-00	METAL CHIP	510	5%	1/10W
R313	1-216-097-91	RES,CHIP	100K	5%	1/10W
R314	1-216-097-91	RES,CHIP	100K	5%	1/10W
R315	1-216-097-91	RES,CHIP	100K	5%	1/10W
R316	1-216-097-91	RES,CHIP	100K	5%	1/10W
R317	1-216-073-00	METAL CHIP	10K	5%	1/10W
R318	1-216-097-91	RES,CHIP	100K	5%	1/10W
R319	1-216-097-91	RES,CHIP	100K	5%	1/10W
R320	1-216-097-91	RES,CHIP	100K	5%	1/10W
R321	1-216-073-00	METAL CHIP	10K	5%	1/10W
R322	1-216-073-00	METAL CHIP	10K	5%	1/10W
R323	1-216-021-00	METAL CHIP	68	5%	1/10W
R324	1-216-021-00	METAL CHIP	68	5%	1/10W
R325	1-216-021-00	METAL CHIP	68	5%	1/10W

Ref. No.	Part No.	Description			Remarks
R326	1-216-021-00	METAL CHIP	68	5%	1/10W
R327	1-216-021-00	METAL CHIP	68	5%	1/10W
R328	1-216-021-00	METAL CHIP	68	5%	1/10W
R329	1-216-049-91	RES,CHIP	1K	5%	1/10W
R330	1-216-073-00	METAL CHIP	10K	5%	1/10W
R333	1-216-049-91	RES,CHIP	1K	5%	1/10W
R334	1-216-097-91	RES,CHIP	100K	5%	1/10W
R335	1-216-049-91	RES,CHIP	1K	5%	1/10W
R336	1-216-089-91	RES,CHIP	47K	5%	1/10W
R340	1-216-089-91	RES,CHIP	47K	5%	1/10W
R349	1-216-041-00	METAL CHIP	470	5%	1/10W
R350	1-216-041-00	METAL CHIP	470	5%	1/10W
R355	1-216-295-91	SHORT	0		
R431	1-216-089-91	RES,CHIP	47K	5%	1/10W
R432	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R433	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R434	1-216-089-91	RES,CHIP	47K	5%	1/10W
R435	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R436	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R437	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R438	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R439	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R440	1-216-295-91	SHORT	0		
R441	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R443	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R444	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R445	1-216-049-91	RES,CHIP	1K	5%	1/10W
R446	1-216-047-91	RES,CHIP	820	5%	1/10W
R447	1-216-049-91	RES,CHIP	1K	5%	1/10W
R448	1-216-047-91	RES,CHIP	820	5%	1/10W
R449	1-216-109-00	METAL CHIP	330K	5%	1/10W
R450	1-216-109-00	METAL CHIP	330K	5%	1/10W
R451	1-216-041-00	METAL CHIP	470	5%	1/10W
R452	1-216-041-00	METAL CHIP	470	5%	1/10W
R455	1-216-097-91	RES,CHIP	100K	5%	1/10W
R456	1-216-049-91	RES,CHIP	1K	5%	1/10W
R457	1-216-049-91	RES,CHIP	1K	5%	1/10W
R458	1-216-041-00	METAL CHIP	470	5%	1/10W
R459	1-216-041-00	METAL CHIP	470	5%	1/10W
R460	1-216-041-00	METAL CHIP	470	5%	1/10W
R461	1-216-041-00	METAL CHIP	470	5%	1/10W
R501	1-216-089-91	RES,CHIP	47K	5%	1/10W
R502	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R503	1-216-089-91	RES,CHIP	47K	5%	1/10W
R504	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R510	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R511	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R512	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R513	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R514	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R517	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R519	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R520	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R521	1-216-109-00	METAL CHIP	330K	5%	1/10W
R522	1-216-109-00	METAL CHIP	330K	5%	1/10W
R523	1-216-041-00	METAL CHIP	470	5%	1/10W
R524	1-216-041-00	METAL CHIP	470	5%	1/10W
R525	1-216-049-91	RES,CHIP	1K	5%	1/10W
R526	1-216-025-91	RES,CHIP	100	5%	1/10W
R527	1-216-025-91	RES,CHIP	100	5%	1/10W

Ref. No.	Part No.	Description			Remarks
R528	1-216-049-91	RES,CHIP	1K	5%	1/10W
R541	1-216-089-91	RES,CHIP	47K	5%	1/10W
R542	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R543	1-216-089-91	RES,CHIP	47K	5%	1/10W
R544	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R545	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R546	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R547	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R548	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R549	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R553	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R555	1-216-109-00	METAL CHIP	330K	5%	1/10W
R556	1-216-109-00	METAL CHIP	330K	5%	1/10W
R557	1-216-041-00	METAL CHIP	470	5%	1/10W
R558	1-216-041-00	METAL CHIP	470	5%	1/10W
R559	1-216-049-91	RES,CHIP	1K	5%	1/10W
R560	1-216-025-91	RES,CHIP	100	5%	1/10W
R561	1-216-025-91	RES,CHIP	100	5%	1/10W
R562	1-216-049-91	RES,CHIP	1K	5%	1/10W
R564	1-216-295-91	SHORT	0		
R569	1-216-295-91	SHORT	0		
R571	1-216-089-91	RES,CHIP	47K	5%	1/10W
R572	1-216-089-91	RES,CHIP	47K	5%	1/10W
R573	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R574	1-216-077-91	RES,CHIP	15K	5%	1/10W
R575	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R576	1-216-077-91	RES,CHIP	15K	5%	1/10W
R577	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R578	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R579	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R580	1-216-079-00	METAL CHIP	18K	5%	1/10W
R585	1-216-109-00	METAL CHIP	330K	5%	1/10W
R586	1-216-109-00	METAL CHIP	330K	5%	1/10W
R587	1-216-041-00	METAL CHIP	470	5%	1/10W
R588	1-216-041-00	METAL CHIP	470	5%	1/10W
R589	1-216-049-91	RES,CHIP	1K	5%	1/10W
R590	1-216-025-91	RES,CHIP	100	5%	1/10W
R591	1-216-025-91	RES,CHIP	100	5%	1/10W
R592	1-216-049-91	RES,CHIP	1K	5%	1/10W
R593	1-216-295-91	SHORT	0		
R598	1-216-295-91	SHORT	0		
		< RELAY >			
RY301	1-755-041-11	RELAY			
RY302	1-755-041-11	RELAY			

* A-6065-358-A CK-82 BOARD, COMPLETE
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(Ref.No.: 2,000Series)

Ref. No.	Part No.	Description			Remarks
		< CAPACITOR >			
C651	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C652	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C653	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C654	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C655	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C656	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C657	1-128-551-11	ELECT	22uF	20%	25V
C658	1-124-767-00	ELECT	2.2uF	20%	50V
C658	1-126-099-11	ELECT	2.2uF	20%	35V
		< CONNECTOR >			
CN651	1-785-696-11	CONNECTOR, FFC/FPC 15P			
* CN652	1-568-955-11	PIN, CONNECTOR 6P			
CN653	1-506-468-11	PIN, CONNECTOR 3P			
* CN654	1-568-951-11	PIN, CONNECTOR 2P			
* CN655	1-568-951-91	PIN, CONNECTOR (STRAIGHT) 2P			
* CN656	1-568-951-41	PIN, CONNECTOR 2P			
* CN657	1-568-951-11	PIN, CONNECTOR 2P			
CN658	1-793-491-11	CONNECTOR, FFC/FPC 17P			
CN659	1-573-913-11	PIN, CONNECTOR 15P			
		< DIODE >			
D651	8-719-069-59	DIODE UDZS-TE17-8.2B			
D652	8-719-988-61	DIODE 1SS355TE-17			
D653	8-719-914-43	DIODE DAN202K-T-146			
		< IC >			
IC651	8-759-473-06	IC BU4011BF-E2			
IC652	8-759-522-08	IC BA6780FP-Y-E2			
		< TRANSISTOR >			
Q651	8-729-421-22	TRANSISTOR	UN2211-TX		
Q652	8-729-421-22	TRANSISTOR	UN2211-TX		
Q653	8-729-421-22	TRANSISTOR	UN2211-TX		
Q654	8-729-421-22	TRANSISTOR	UN2211-TX		
Q655	8-729-026-49	TRANSISTOR	2SA1037AK-T146-QR		
Q656	8-729-120-28	TRANSISTOR	2SC2412K-T-146-QR		
Q657	8-729-424-08	TRANSISTOR	UN2111-TX		
		< RESISTOR >			
R651	1-216-049-91	RES,CHIP	1K	5%	1/10W
R652	1-216-049-91	RES,CHIP	1K	5%	1/10W
R653	1-216-049-91	RES,CHIP	1K	5%	1/10W
R654	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R655	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R656	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R657	1-216-073-00	METAL CHIP	10K	5%	1/10W
R659	1-216-073-00	METAL CHIP	10K	5%	1/10W
R661	1-216-073-00	METAL CHIP	10K	5%	1/10W
R662	1-216-097-91	RES,CHIP	100K	5%	1/10W
R664	1-216-037-00	METAL CHIP	330	5%	1/10W
R665	1-216-063-91	RES,CHIP	3.9K	5%	1/10W
R666	1-216-077-91	RES,CHIP	15K	5%	1/10W
R667	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R668	1-216-075-00	METAL CHIP	12K	5%	1/10W
R669	1-216-081-00	METAL CHIP	22K	5%	1/10W
R670	1-216-081-00	METAL CHIP	22K	5%	1/10W
R671	1-216-081-00	METAL CHIP	22K	5%	1/10W
R672	1-216-081-00	METAL CHIP	22K	5%	1/10W
R673	1-216-081-00	METAL CHIP	22K	5%	1/10W
R674	1-216-081-00	METAL CHIP	22K	5%	1/10W
R675	1-216-081-00	METAL CHIP	22K	5%	1/10W
R676	1-216-081-00	METAL CHIP	22K	5%	1/10W
R677	1-219-107-91	RES,CHIP	1.5	5%	1/8W
R678	1-219-107-91	RES,CHIP	1.5	5%	1/8W

Ref. No.	Part No.	Description			Remarks
R679	1-219-107-91	RES,CHIP	1.5	5%	1/8W
R684	1-216-295-91	SHORT	0		
R686	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R687	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R688	1-216-308-00	METAL CHIP	4.7	5%	1/10W
R689	1-216-308-00	METAL CHIP	4.7	5%	1/10W

Ref. No.	Part No.	Description			Remarks
*	A-6065-361-A	CO-25 BOARD, COMPLETE			
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					(Ref.No.: 1,000Series)
		< CAPACITOR >			
C701	1-104-664-11	ELECT	47uF	20%	16V
C704	1-163-259-91	CERAMIC CHIP	220PF	5%	50V
C705	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C706	1-126-960-11	ELECT	1uF	20%	50V
C707	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C708	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
		< CONNECTOR >			
CN701	1-793-480-11	CONNECTOR, FFC/FPC 9P			
		< DIODE >			
D701	8-719-988-61	DIODE 1SS355TE-17			
D702	8-719-067-59	DIODE MAZ9120D0LS0-TX/L			
		< FERRITE BEAD >			
FB701	1-414-135-11	FERRITE	0UH		
FB702	1-414-553-11	FERRITE	0UH		
FB703	1-414-553-11	FERRITE	0UH		
FB704	1-414-553-11	FERRITE	0UH		
FB705	1-414-553-11	FERRITE	0UH		
FB706	1-414-553-11	FERRITE	0UH		
		< IC >			
IC701	8-749-016-00	IC HVE0024(OPTICAL)			
		< JACK >			
J701	1-779-382-11	JACK, PIN 1P(COAXIAL)			
J702	1-793-077-11	JACK (DIA. 3.5)(S-LINK)			
J703	1-764-188-21	JACK (SMALL TYPE) (DIA. 3.5)			
					(MEGA CONTROL)
		< JUMPER RESISTOR >			
JR701	1-216-296-91	SHORT	0		
		< COIL >			
L701	1-414-930-21	INDUCTOR	2.2uH		
		< TRANSISTOR >			
Q701	8-729-120-28	TRANSISTOR	2SC2412K-T-146-QR		
Q702	8-729-023-22	TRANSISTOR	2SD2114KT146		
		< RESISTOR >			
R701	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R702	1-216-063-91	RES,CHIP	3.9K	5%	1/10W
R703	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R704	1-216-033-00	METAL CHIP	220	5%	1/10W
R705	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R706	1-216-021-00	METAL CHIP	68	5%	1/10W
R707	1-216-073-00	METAL CHIP	10K	5%	1/10W
R708	1-216-001-00	METAL CHIP	10	5%	1/10W
R709	1-216-025-91	RES,CHIP	100	5%	1/10W
R710	1-216-049-91	RES,CHIP	1K	5%	1/10W
R711	1-216-295-91	SHORT	0		
R712	1-216-295-91	SHORT	0		
R713	1-216-295-91	SHORT	0		
R715	1-216-097-91	RES,CHIP	100K	5%	1/10W

Ref. No.	Part No.	Description			Remarks
*	A-6065-363-A	DS-87 BOARD, COMPLETE			
		**********************			
					(Ref.No.: 1,000Series)
		< CONNECTOR >			
* CN801	1-506-481-11	PIN, CONNECTOR 2P			
		< MOTOR >			
M871	A-6062-239-A	MOTOR ASSY, LOADING			
		< SWITCH >			
S801	1-762-386-21	SWITCH, PUSH			

Ref. No.	Part No.	Description			Remarks
*	A-6065-368-A	FL-105 BOARD, COMPLETE			
		***********************			
					(Ref.No.: 3,000Series)
	3-057-012-01	HOLDER (FL)			
	3-884-241-01	SHEET (C), ADHESIVE			
		< CAPACITOR >			
C201	1-124-589-11	ELECT	47uF	20%	16V
C203	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C204	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C205	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C206	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C207	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C208	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C209	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C210	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C211	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C212	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C213	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C214	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C215	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C216	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C217	1-163-259-91	CERAMIC CHIP	220PF	5%	50V
C218	1-163-259-91	CERAMIC CHIP	220PF	5%	50V
C219	1-163-259-91	CERAMIC CHIP	220PF	5%	50V
C220	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C221	1-163-259-91	CERAMIC CHIP	220PF	5%	50V

Ref. No.	Part No.	Description			Remarks
C222	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C223	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C224	1-124-589-11	ELECT	47uF	20%	16V
C225	1-128-131-11	ELECT	22uF	20%	50V
C226	1-137-150-11	FILM	0.01uF	5%	100V
C227	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C228	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C229	1-128-131-11	ELECT	22uF	20%	50V
C230	1-128-131-11	ELECT	22uF	20%	50V
C231	1-128-131-11	ELECT	22uF	20%	50V
C232	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C233	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C234	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C235	1-163-259-91	CERAMIC CHIP	220PF	5%	50V
C236	1-163-259-91	CERAMIC CHIP	220PF	5%	50V
C237	1-163-259-91	CERAMIC CHIP	220PF	5%	50V
C238	1-163-259-91	CERAMIC CHIP	220PF	5%	50V
C240	1-163-259-91	CERAMIC CHIP	220PF	5%	50V
C241	1-163-259-91	CERAMIC CHIP	220PF	5%	50V
C242	1-163-259-91	CERAMIC CHIP	220PF	5%	50V
C243	1-163-259-91	CERAMIC CHIP	220PF	5%	50V
C244	1-163-259-91	CERAMIC CHIP	220PF	5%	50V
C245	1-163-259-91	CERAMIC CHIP	220PF	5%	50V
C246	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C247	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C248	1-124-234-00	ELECT	22uF	20%	16V
C249	1-124-234-00	ELECT	22uF	20%	16V
C250	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C251	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C252	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C253	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
		< CONNECTOR >			
* CN201	1-568-944-11	PIN, CONNECTOR 6P			
CN202	1-573-742-11	PIN, CONNECTOR 15P			
* CN203	1-568-949-11	PIN, CONNECTOR 11P			
CN204	1-793-476-11	CONNECTOR, FFC/FPC 12P			
* CN205	1-568-941-11	PIN, CONNECTOR 3P			
		< DIODE >			
D202	8-719-988-61	DIODE 1SS355TE-17			
D205	8-719-073-03	DIODE MA8082-(K8).S0			
D206	8-719-041-97	DIODE MA113-(TX)			
D209	8-719-041-97	DIODE MA113-(TX)			
D210	8-719-018-12	DIODE MA8330-L-TX			
D211	8-719-422-67	DIODE MA8062-H-TX			
D212	8-719-056-06	DIODE SLR-342DCT32(MEGA CONTROL)			
D213	8-719-056-06	DIODE SLR-342DCT32(DIRECT SEARCH)			
D214	8-719-052-61	DIODE SLR-342PGT31(DISC CHANGE)			
		< FERRITE BEAD >			
FB201	1-414-135-11	FERRITE	0UH		
FB202	1-414-135-11	FERRITE	0UH		
FB203	1-469-324-21	FERRITE	0UH		
FB204	1-469-324-21	FERRITE	0UH		

Ref. No.	Part No.	Description			Remarks
		< IC >			
IC201	8-759-640-12	IC M38B57MCH-G222FP			
IC202	8-759-356-27	IC NJM2129M-TE2			
IC203	8-759-326-78	IC PST9140NL			
IC205	8-759-593-18	IC M35501FP-T2			
		< COIL >			
L201	1-412-533-21	INDUCTOR	47uH		
		< FLUORESCENT INDICATOR >			
ND201	1-517-834-11	INDICATOR TUBE, FLUORESCENT			
		< TRANSISTOR >			
Q201	8-729-808-01	TRANSISTOR	2SD1622-S		
Q202	8-729-808-01	TRANSISTOR	2SD1622-S		
Q203	8-729-804-41	TRANSISTOR	2SB1122-ST-TD		
Q204	8-729-421-22	TRANSISTOR	UN2211-TX		
Q205	8-729-421-22	TRANSISTOR	UN2211-TX		
Q206	8-729-421-22	TRANSISTOR	UN2211-TX		
Q207	8-729-421-22	TRANSISTOR	UN2211-TX		
Q208	8-729-421-22	TRANSISTOR	UN2211-TX		
Q209	8-729-421-22	TRANSISTOR	UN2211-TX		
Q210	8-729-421-22	TRANSISTOR	UN2211-TX		
Q211	8-729-808-01	TRANSISTOR	2SD1622-S		
		< RESISTOR >			
R201	1-208-806-11	RES,CHIP	10K	0.50%	1/10W
R202	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R203	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R209	1-216-073-00	METAL CHIP	10K	5%	1/10W
R211	1-208-806-11	RES,CHIP	10K	0.50%	1/10W
R212	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R213	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R214	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R215	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R216	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R218	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R219	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R220	1-216-063-91	RES,CHIP	3.9K	5%	1/10W
R221	1-208-806-11	RES,CHIP	10K	0.50%	1/10W
R222	1-208-806-11	RES,CHIP	10K	0.50%	1/10W
R223	1-208-806-11	RES,CHIP	10K	0.50%	1/10W
R224	1-216-049-91	RES,CHIP	1K	5%	1/10W
R225	1-216-047-91	RES,CHIP	820	5%	1/10W
R226	1-216-037-00	METAL CHIP	330	5%	1/10W
R227	1-216-073-00	METAL CHIP	10K	5%	1/10W
R228	1-216-049-91	RES,CHIP	1K	5%	1/10W
R229	1-216-049-91	RES,CHIP	1K	5%	1/10W
R230	1-216-295-91	SHORT	0		
R231	1-216-073-00	METAL CHIP	10K	5%	1/10W
R232	1-216-073-00	METAL CHIP	10K	5%	1/10W
R233	1-216-073-00	METAL CHIP	10K	5%	1/10W
R234	1-216-073-00	METAL CHIP	10K	5%	1/10W
R235	1-216-089-91	RES,CHIP	47K	5%	1/10W
R236	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R237	1-216-025-91	RES,CHIP	100	5%	1/10W

Ref. No.	Part No.	Description			Remarks
R238	1-216-097-91	RES,CHIP	100K	5%	1/10W
R239	1-216-025-91	RES,CHIP	100	5%	1/10W
R259	1-216-025-91	RES,CHIP	100	5%	1/10W
R260	1-216-025-91	RES,CHIP	100	5%	1/10W
R261	1-216-049-91	RES,CHIP	1K	5%	1/10W
R262	1-216-049-91	RES,CHIP	1K	5%	1/10W
R263	1-216-073-00	METAL CHIP	10K	5%	1/10W
R264	1-216-073-00	METAL CHIP	10K	5%	1/10W
R265	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R266	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R267	1-216-073-00	METAL CHIP	10K	5%	1/10W
R270	1-216-073-00	METAL CHIP	10K	5%	1/10W
R279	1-216-049-91	RES,CHIP	1K	5%	1/10W
R280	1-216-049-91	RES,CHIP	1K	5%	1/10W
R281	1-216-025-91	RES,CHIP	100	5%	1/10W
R282	1-216-025-91	RES,CHIP	100	5%	1/10W
R283	1-216-025-91	RES,CHIP	100	5%	1/10W
R284	1-216-025-91	RES,CHIP	100	5%	1/10W
R285	1-216-025-91	RES,CHIP	100	5%	1/10W
R286	1-216-025-91	RES,CHIP	100	5%	1/10W
R287	1-216-025-91	RES,CHIP	100	5%	1/10W
R289	1-216-025-91	RES,CHIP	100	5%	1/10W
R290	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R291	1-216-073-00	METAL CHIP	10K	5%	1/10W
R296	1-216-093-91	RES,CHIP	68K	5%	1/10W
R298	1-216-031-00	METAL CHIP	180	5%	1/10W
R299	1-216-049-91	RES,CHIP	1K	5%	1/10W
		< SWITCH >			
S201	1-771-349-21	SWITCH, KEYBOARD(■)			
S202	1-771-349-21	SWITCH, KEYBOARD(❚❚)			
S212	1-771-349-21	SWITCH, KEYBOARD(▷)			
S213	1-771-349-21	SWITCH, KEYBOARD(MEGA CONTROL)			
S214	1-771-349-21	SWITCH, KEYBOARD(DIRECT)			
S230	1-475-543-11	ENCODER, ROTARY(PREV/NEXT)			
		< TRANSFORMER >			
T201	1-433-840-11	TRANSFORMER, DC-DC CONVERTER			
		< VIBRATOR >			
X201	1-577-358-21	VIBRATOR, CERAMIC(4MHz)			

Ref. No.	Part No.	Description			Remarks
*	A-6065-366-A	FR-155 BOARD, COMPLETE			
		***********************			
					(Ref.No.: 1,000Series)
		< CAPACITOR >			
C051	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C052	1-124-589-11	ELECT	47uF	20%	16V
C053	1-124-589-11	ELECT	47uF	20%	16V
		< CONNECTOR >			
* CN001	1-568-942-11	PIN, CONNECTOR 4P			
* CN002	1-568-949-11	PIN, CONNECTOR 11P			
		< DIODE >			
D071	8-719-064-11	DIODE SPR-325MVW(I/⏻)			
D072	8-719-056-06	DIODE SLR-342DCT32(EASY PLAY)			
D073	8-719-056-06	DIODE SLR-342DCT32(EASY PLAY)			
		< IC >			
IC051	8-749-011-22	IC GP1U27X(REMOTE SENSOR)			
		< COIL >			
L002	1-414-936-21	INDUCTOR	22uH		
		< TRANSISTOR >			
Q001	8-729-421-22	TRANSISTOR	UN2211-TX		
Q002	8-729-421-22	TRANSISTOR	UN2211-TX		
Q003	8-729-421-22	TRANSISTOR	UN2211-TX		
		< RESISTOR >			
R071	1-216-037-00	METAL CHIP	330	5%	1/10W
R072	1-216-033-00	METAL CHIP	220	5%	1/10W
R073	1-216-025-91	RES,CHIP	100	5%	1/10W
		< SWITCH >			
S071	1-771-349-21	SWITCH, KEYBOARD(I/⏻)			
S072	1-771-349-21	SWITCH, KEYBOARD(EASY PLAY)			

Ref. No.	Part No.	Description			Remarks
*	A-6065-364-A	KB-36 BOARD, COMPLETE			
		**********************			
					(Ref.No.: 1,000Series)
		< CONNECTOR >			
CN601	1-506-469-11	PIN, CONNECTOR 4P			
CN602	1-506-468-11	PIN, CONNECTOR 3P			
		< DIODE >			
D601	8-719-067-59	DIODE MAZ9120D0LS0-TX/L			
D602	8-719-067-59	DIODE MAZ9120D0LS0-TX/L			
D603	8-719-067-59	DIODE MAZ9120D0LS0-TX/L			
		< FERRITE BEAD >			
FB601	1-414-553-11	FERRITE	0UH		
FB602	1-414-553-11	FERRITE	0UH		
FB603	1-469-324-21	FERRITE	0UH		
		< JACK >			
J601	1-778-314-11	CONNECTOR, DIN(KEY BOARD)			
		< JUMPER RESISTOR >			
JR001	1-216-295-91	SHORT	0		
JR002	1-216-295-91	SHORT	0		
		< RESISTOR >			
R602	1-216-296-91	SHORT	0		
R604	1-216-296-91	SHORT	0		

Ref. No.	Part No.	Description			Remarks
*	A-6065-367-A	LE-25 BOARD, COMPLETE			
		**********************			
					(Ref.No.: 1,000Series)
		< CONNECTOR >			
CN850	1-573-817-11	CONNECTOR, BOARD TO BOARD 3P			
		< DIODE >			
D850	8-719-076-64	DIODE LNG997CKB0S0			
D860	8-719-076-64	DIODE LNG997CKB0S0			
		< RESISTOR >			
R850	1-216-031-00	METAL CHIP	180	5%	1/10W
R851	1-216-045-00	METAL CHIP	680	5%	1/10W
*	A-6065-374-A	LM-58 BOARD, COMPLETE			
		**********************			
					(Ref.No.: 1,000Series)
		< CONNECTOR >			
* CN871	1-568-951-11	PIN, CONNECTOR 2P			
*	A-6065-373-A	LS-52 BOARD, COMPLETE			
		**********************			
					(Ref.No.: 1,000Series)
* CN811	1-568-941-11	PIN, CONNECTOR 3P			
		< SWITCH >			
S811	1-571-300-21	SWITCH, ROTARY			
*	A-6065-359-A	LT-34 BOARD, COMPLETE			
		**********************			
					(Ref.No.: 1,000Series)
		< CONNECTOR >			
CN631	1-568-940-21	PIN, CONNECTOR 2P			
		< DIODE >			
D631	8-719-070-82	DIODE HLMF-KL05-2CD			
D632	8-719-070-82	DIODE HLMF-KL05-2CD			
D633	8-719-070-82	DIODE HLMF-KL05-2CD			
		< RESISTOR >			
R631	1-216-021-00	METAL CHIP	68	5%	1/10W
R632	1-216-021-00	METAL CHIP	68	5%	1/10W
R633	1-216-021-00	METAL CHIP	68	5%	1/10W

Ref. No.	Part No.	Description			Remarks
*	A-6065-360-A	MB-85 BOARD, COMPLETE			
		**********************			
					(Ref.No.: 4,000Series)
		< CAPACITOR >			
C001	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C002	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C003	1-126-246-11	ELECT CHIP	220uF	20%	4V
C004	1-126-204-11	ELECT CHIP	47uF	20%	16V
C005	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C007	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C008	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C010	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C011	1-125-822-11	TANTALUM	10uF	20%	10V
C012	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C013	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C015	1-126-246-11	ELECT CHIP	220uF	20%	4V
C016	1-125-822-11	TANTALUM	10uF	20%	10V
C017	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C018	1-125-822-11	TANTALUM	10uF	20%	10V
C019	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C201	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C202	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C203	1-125-822-11	TANTALUM	10uF	20%	10V
C204	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C206	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C209	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C210	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C211	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C212	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C213	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C304	1-110-563-11	CERAMIC CHIP	0.068uF	10%	16V
C307	1-125-822-11	TANTALUM	10uF	20%	10V
C309	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C310	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C312	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C313	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C314	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C315	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C316	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C317	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C318	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C319	1-125-822-11	TANTALUM	10uF	20%	10V
C320	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C321	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C322	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C323	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C324	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C325	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C327	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C328	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C329	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C331	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C333	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C334	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V

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Ref. No.	Part No.	Description			Remarks
C337	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C338	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C339	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C341	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C343	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C344	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C401	1-125-822-11	TANTALUM	10uF	20%	10V
C402	1-126-209-11	ELECT CHIP	100uF	20%	4V
C403	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C404	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C405	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C406	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C408	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C410	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C411	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C413	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C414	1-125-822-11	TANTALUM	10uF	20%	10V
C415	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C416	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C418	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C420	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C422	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C425	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C426	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C428	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C431	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C432	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C433	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C434	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C436	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C438	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C439	1-125-822-11	TANTALUM	10uF	20%	10V
C440	1-125-822-11	TANTALUM	10uF	20%	10V
C441	1-126-209-11	ELECT CHIP	100uF	20%	4V
C443	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C502	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C505	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C506	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C508	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C510	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C512	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C513	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C514	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C515	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C516	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C517	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C601	1-125-822-11	TANTALUM	10uF	20%	10V
C602	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C603	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C604	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C605	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C606	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C607	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C608	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C701	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V

Ref. No.	Part No.	Description			Remarks
C702	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C703	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C704	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C705	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C706	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C707	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C708	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C709	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C710	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C711	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C712	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C713	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C714	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C715	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C717	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C801	1-126-204-11	ELECT CHIP	47uF	20%	16V
C802	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C803	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C805	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C806	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C807	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C808	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C809	1-110-563-11	CERAMIC CHIP	0.068uF	10%	16V
C810	1-110-563-11	CERAMIC CHIP	0.068uF	10%	16V
C812	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C813	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C814	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C815	1-110-666-11	ELECT CHIP	22uF	20%	6.3V
C816	1-104-601-11	ELECT CHIP	10uF	20%	10V
C817	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C818	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C819	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C820	1-164-230-11	CERAMIC CHIP	220PF	5%	50V
C821	1-164-230-11	CERAMIC CHIP	220PF	5%	50V
C822	1-126-204-11	ELECT CHIP	47uF	20%	16V
C823	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C824	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C825	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C830	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C831	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C832	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C833	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C834	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C835	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C836	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C837	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C904	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C905	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C906	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C907	1-125-822-11	TANTALUM	10uF	20%	10V
C908	1-128-391-11	ELECT CHIP	330uF	20%	6.3V
C909	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C910	1-125-822-11	TANTALUM	10uF	20%	10V
C911	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C913	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V

Ref. No.	Part No.	Description			Remarks
C914	1-125-822-11	TANTALUM	10uF	20%	10V
C916	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C922	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C923	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C924	1-125-822-11	TANTALUM	10uF	20%	10V
C925	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C926	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C927	1-125-822-11	TANTALUM	10uF	20%	10V
C928	1-128-391-11	ELECT CHIP	330uF	20%	6.3V
C929	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C931	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C932	1-125-822-11	TANTALUM	10uF	20%	10V
C933	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C934	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C935	1-125-822-11	TANTALUM	10uF	20%	10V
C937	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C939	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C940	1-125-822-11	TANTALUM	10uF	20%	10V
		< CONNECTOR >			
CN001	1-785-728-21	PIN (PC BOARD), CONNECTOR 7P			
CN002	1-779-936-11	CONNECTOR, FFC/FPC 18P			
CN003	1-779-936-11	CONNECTOR, FFC/FPC 18P			
CN004	1-778-772-11	CONNECTOR, FFC/FPC 7P			
CN005	1-784-327-11	CONNECTOR, FFC/FPC 28P			
CN006	1-774-768-11	CONNECTOR, FFC/FPC 17P			
CN007	1-778-274-11	CONNECTOR, FFC/FPC 13P			
CN009	1-774-767-11	CONNECTOR, FFC/FPC 15P			
CN010	1-573-806-21	PIN, CONNECTOR (1.5MM) (SMD)6P			
* CN012	1-573-768-21	PIN, CONNECTOR (1.5MM) (SMD)5P			
		< DIODE >			
D701	8-719-988-61	DIODE 1SS355TE-17			
D801	8-719-941-09	DIODE DAP202UT106			
D802	8-719-988-61	DIODE 1SS355TE-17			
D803	8-719-941-09	DIODE DAP202UT106			
D804	8-719-941-86	DIODE DAN202UT106			
D805	8-719-941-86	DIODE DAN202UT106			
D806	8-719-988-61	DIODE 1SS355TE-17			
D807	8-719-988-61	DIODE 1SS355TE-17			
		< FERRITE BEAD >			
FB001	1-469-324-21	FERRITE	0UH		
FB002	1-469-324-21	FERRITE	0UH		
FB003	1-469-324-21	FERRITE	0UH		
FB004	1-469-324-21	FERRITE	0UH		
FB005	1-469-324-21	FERRITE	0UH		
FB006	1-469-324-21	FERRITE	0UH		
FB007	1-469-324-21	FERRITE	0UH		
FB008	1-469-324-21	FERRITE	0UH		
FB010	1-469-116-21	FERRITE	0UH		
FB011	1-469-116-21	FERRITE	0UH		
FB012	1-469-116-21	FERRITE	0UH		
FB014	1-469-116-21	FERRITE	0UH		
FB015	1-469-116-21	FERRITE	0UH		
FB016	1-216-801-11	METAL CHIP	22	5%	1/16W
FB017	1-469-116-21	FERRITE	0UH		

Ref. No.	Part No.	Description			Remarks
FB018	1-469-116-21	FERRITE	0UH		
FB019	1-469-116-21	FERRITE	0UH		
FB020	1-469-116-21	FERRITE	0UH		
FB021	1-469-116-21	FERRITE	0UH		
FB022	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
FB024	1-469-116-21	FERRITE	0UH		
FB026	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
FB028	1-469-116-21	FERRITE	0UH		
FB029	1-469-324-21	FERRITE	0UH		
FB030	1-469-116-21	FERRITE	0UH		
FB031	1-469-116-21	FERRITE	0UH		
FB032	1-469-116-21	FERRITE	0UH		
FB033	1-469-116-21	FERRITE	0UH		
FB035	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
FB037	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
FB040	1-469-116-21	FERRITE	0UH		
FB043	1-500-283-11	INDUCTOR CHIP	0UH		
FB047	1-469-116-21	FERRITE	0UH		
FB048	1-500-283-11	INDUCTOR CHIP	0UH		
FB049	1-469-116-21	FERRITE	0UH		
FB050	1-500-283-11	INDUCTOR CHIP	0UH		
FB051	1-469-116-21	FERRITE	0UH		
FB052	1-500-283-11	INDUCTOR CHIP	0UH		
FB053	1-500-283-11	INDUCTOR CHIP	0UH		
FB054	1-500-283-11	INDUCTOR CHIP	0UH		
FB055	1-500-283-11	INDUCTOR CHIP	0UH		
FB056	1-500-283-11	INDUCTOR CHIP	0UH		
FB058	1-500-283-11	INDUCTOR CHIP	0UH		
FB060	1-500-283-11	INDUCTOR CHIP	0UH		
FB061	1-469-116-21	FERRITE	0UH		
FB063	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
FB065	1-469-116-21	FERRITE	0UH		
FB067	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
FB069	1-469-116-21	FERRITE	0UH		
FB071	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
FB073	1-469-116-21	FERRITE	0UH		
FB075	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
FB077	1-469-116-21	FERRITE	0UH		
FB078	1-216-801-11	METAL CHIP	22	5%	1/16W
FB080	1-216-801-11	METAL CHIP	22	5%	1/16W
FB081	1-216-801-11	METAL CHIP	22	5%	1/16W
FB083	1-216-801-11	METAL CHIP	22	5%	1/16W
FB084	1-216-801-11	METAL CHIP	22	5%	1/16W
FB085	1-216-801-11	METAL CHIP	22	5%	1/16W
FB086	1-216-801-11	METAL CHIP	22	5%	1/16W
FB087	1-216-801-11	METAL CHIP	22	5%	1/16W
FB088	1-216-801-11	METAL CHIP	22	5%	1/16W
FB105	1-469-324-21	FERRITE	0UH		
FB106	1-469-324-21	FERRITE	0UH		
		< FILTER >			
FL001	1-234-177-21	FILTER, CHIP EMI			
FL002	1-234-177-21	FILTER, CHIP EMI			
FL003	1-233-893-21	FILTER, CHIP EMI			
FL004	1-233-893-21	FILTER, CHIP EMI			
FL005	1-234-177-21	FILTER, CHIP EMI			

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Ref. No.	Part No.	Description				Remarks
FL006	1-234-177-21	FILTER, CHIP EMI				
FL008	1-234-177-21	FILTER, CHIP EMI				
FL009	1-234-177-21	FILTER, CHIP EMI				
FL010	1-234-177-21	FILTER, CHIP EMI				
FL011	1-234-177-21	FILTER, CHIP EMI				
FL013	1-233-893-21	FILTER, CHIP EMI				
FL014	1-234-177-21	FILTER, CHIP EMI				
FL015	1-234-177-21	FILTER, CHIP EMI				
FL016	1-234-177-21	FILTER, CHIP EMI				
FL202	1-234-177-21	FILTER, CHIP EMI				
FL203	1-234-177-21	FILTER, CHIP EMI				
FL204	1-234-177-21	FILTER, CHIP EMI				
FL205	1-234-177-21	FILTER, CHIP EMI				
FL301	1-234-177-21	FILTER, CHIP EMI				
FL302	1-234-177-21	FILTER, CHIP EMI				
FL303	1-234-177-21	FILTER, CHIP EMI				
FL401	1-234-177-21	FILTER, CHIP EMI				
FL402	1-234-177-21	FILTER, CHIP EMI				
FL403	1-234-177-21	FILTER, CHIP EMI				
FL404	1-234-177-21	FILTER, CHIP EMI				
FL405	1-234-177-21	FILTER, CHIP EMI				
FL501	1-234-177-21	FILTER, CHIP EMI				
FL502	1-234-177-21	FILTER, CHIP EMI				
FL503	1-234-177-21	FILTER, CHIP EMI				
FL601	1-234-177-21	FILTER, CHIP EMI				
FL602	1-234-177-21	FILTER, CHIP EMI				
FL701	1-234-177-21	FILTER, CHIP EMI				
FL904	1-234-177-21	FILTER, CHIP EMI				
		< IC >				
IC001	8-759-594-91	IC	SM8701AM-E2			
IC003	8-759-531-92	IC	TC7WH04FU(TE12R)			
IC004	8-759-531-92	IC	TC7WH04FU(TE12R)			
IC005	8-759-486-55	IC	NJM2370U33-TE2			
IC201	8-759-362-00	IC	BR9040F-E2			
IC201	8-759-469-25	IC	AK6440AF-E2			
IC202	8-759-599-39	IC	MB91101APFV-G-BND			
IC203	8-759-580-60	IC	SN74AHCT08PWR			
IC204	8-759-573-65	IC	IDT71V016S20PHAU-TL			
IC206	8-759-594-90	IC	MR27V1602D-13MAZ060			
IC207	8-759-427-92	IC	PST9126NL			
IC302	8-759-486-55	IC	NJM2370U33-TE2			
IC303	8-759-567-27	IC	CXD8784R			
IC304	8-759-567-35	IC	KM416V1200CT-L6T			
IC401	8-752-398-60	IC	CXD1930BQ			
IC402	8-759-567-34	IC	KM416S1020CT-G10T			
IC403	8-759-567-34	IC	KM416S1020CT-G10T			
IC404	8-759-486-55	IC	NJM2370U33-TE2			
IC501	8-752-400-43	IC	CXD1901AR			
IC502	8-752-390-12	IC	CXD1857Q			
IC601	8-759-591-83	IC	CXD9515Q			
IC602	8-759-654-03	IC	KM29W32000ATS-T			
IC701	8-759-598-87	IC	CXD8791AQ			
IC702	8-759-337-40	IC	NJM2904V(TE2)			
IC801	8-759-522-13	IC	BA5981FP-E2			
IC802	8-759-567-26	IC	BA5983FP-E2			
IC803	8-759-338-78	IC	BA10324AFV-E2			
IC902	8-759-572-26	IC	CXD8799N-T2			
IC904	8-759-052-52	IC	BA178M05FP-E2			
IC905	8-759-572-26	IC	CXD8799N-T2			
IC906	8-759-572-26	IC	CXD8799N-T2			
IC907	8-759-572-26	IC	CXD8799N-T2			
		< COIL >				
L001	1-414-754-11	INDUCTOR	10uH			
L402	1-414-754-11	INDUCTOR	10uH			
		< TRANSISTOR >				
Q801	8-729-015-74	TRANSISTOR	UN5111			
Q802	8-729-230-63	TRANSISTOR	2SD1819A-QRS-TX			
Q803	8-729-230-63	TRANSISTOR	2SD1819A-QRS-TX			
		< RESISTOR >				
R001	1-216-833-91	RES,CHIP	10K	5%	1/16W	
R002	1-216-833-91	RES,CHIP	10K	5%	1/16W	
R003	1-216-833-91	RES,CHIP	10K	5%	1/16W	
R004	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R005	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R006	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R007	1-216-864-11	METAL CHIP	0	5%	1/16W	
R009	1-216-864-11	METAL CHIP	0	5%	1/16W	
R010	1-216-801-11	METAL CHIP	22	5%	1/16W	
R014	1-216-801-11	METAL CHIP	22	5%	1/16W	
R016	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R023	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R024	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R025	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R030	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R035	1-216-833-91	RES,CHIP	10K	5%	1/16W	
R036	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R037	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R040	1-216-864-11	METAL CHIP	0	5%	1/16W	
R044	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R045	1-216-833-91	RES,CHIP	10K	5%	1/16W	
R053	1-216-833-91	RES,CHIP	10K	5%	1/16W	
R202	1-216-801-11	METAL CHIP	22	5%	1/16W	
R203	1-216-833-91	RES,CHIP	10K	5%	1/16W	
R204	1-216-833-91	RES,CHIP	10K	5%	1/16W	
R205	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R206	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R207	1-216-833-91	RES,CHIP	10K	5%	1/16W	
R212	1-216-813-11	METAL CHIP	220	5%	1/16W	
R213	1-216-801-11	METAL CHIP	22	5%	1/16W	
R217	1-216-833-91	RES,CHIP	10K	5%	1/16W	
R222	1-216-833-91	RES,CHIP	10K	5%	1/16W	
R223	1-216-833-91	RES,CHIP	10K	5%	1/16W	
R225	1-216-833-91	RES,CHIP	10K	5%	1/16W	
R226	1-216-833-91	RES,CHIP	10K	5%	1/16W	

Ref. No.	Part No.	Description			Remarks
R227	1-216-813-11	METAL CHIP	220	5%	1/16W
R228	1-216-813-11	METAL CHIP	220	5%	1/16W
R229	1-216-813-11	METAL CHIP	220	5%	1/16W
R230	1-216-813-11	METAL CHIP	220	5%	1/16W
R231	1-216-813-11	METAL CHIP	220	5%	1/16W
R232	1-216-813-11	METAL CHIP	220	5%	1/16W
R235	1-216-864-11	METAL CHIP	0	5%	1/16W
R238	1-216-208-00	RES,CHIP	2.7K	5%	1/8W
R241	1-216-208-00	RES,CHIP	2.7K	5%	1/8W
R305	1-218-879-11	METAL CHIP	22K	0.50%	1/16W
R306	1-218-831-11	METAL CHIP	220	0.50%	1/16W
R307	1-218-883-11	METAL CHIP	33K	0.50%	1/16W
R308	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R309	1-216-838-11	METAL CHIP	27K	5%	1/16W
R310	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R313	1-216-833-91	RES,CHIP	10K	5%	1/16W
R314	1-216-833-91	RES,CHIP	10K	5%	1/16W
R315	1-216-833-91	RES,CHIP	10K	5%	1/16W
R316	1-218-855-11	METAL CHIP	2.2K	0.50%	1/16W
R317	1-218-871-11	METAL CHIP	10K	0.50%	1/16W
R318	1-216-849-11	METAL CHIP	220K	5%	1/16W
R319	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R320	1-218-853-11	METAL CHIP	1.8K	0.50%	1/16W
R321	1-218-847-11	METAL CHIP	1K	0.50%	1/16W
R322	1-218-871-11	METAL CHIP	10K	0.50%	1/16W
R323	1-216-833-91	RES,CHIP	10K	5%	1/16W
R324	1-216-833-91	RES,CHIP	10K	5%	1/16W
R325	1-216-833-91	RES,CHIP	10K	5%	1/16W
R326	1-216-833-91	RES,CHIP	10K	5%	1/16W
R327	1-216-833-91	RES,CHIP	10K	5%	1/16W
R328	1-216-833-91	RES,CHIP	10K	5%	1/16W
R329	1-216-833-91	RES,CHIP	10K	5%	1/16W
R330	1-216-833-91	RES,CHIP	10K	5%	1/16W
R331	1-216-833-91	RES,CHIP	10K	5%	1/16W
R332	1-216-833-91	RES,CHIP	10K	5%	1/16W
R337	1-216-809-11	METAL CHIP	100	5%	1/16W
R338	1-216-833-91	RES,CHIP	10K	5%	1/16W
R339	1-216-833-91	RES,CHIP	10K	5%	1/16W
R340	1-216-833-91	RES,CHIP	10K	5%	1/16W
R341	1-216-809-11	METAL CHIP	100	5%	1/16W
R403	1-216-833-91	RES,CHIP	10K	5%	1/16W
R404	1-216-864-11	METAL CHIP	0	5%	1/16W
R405	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R406	1-216-822-11	METAL CHIP	1.2K	5%	1/16W
R407	1-216-833-91	RES,CHIP	10K	5%	1/16W
R409	1-216-864-11	METAL CHIP	0	5%	1/16W
R410	1-216-821-11	METAL CHIP	1K	5%	1/16W
R411	1-216-833-91	RES,CHIP	10K	5%	1/16W
R412	1-216-809-11	METAL CHIP	100	5%	1/16W
R426	1-216-813-11	METAL CHIP	220	5%	1/16W
R427	1-216-813-11	METAL CHIP	220	5%	1/16W
R428	1-216-813-11	METAL CHIP	220	5%	1/16W
R429	1-216-813-11	METAL CHIP	220	5%	1/16W
R430	1-216-813-11	METAL CHIP	220	5%	1/16W
R431	1-216-813-11	METAL CHIP	220	5%	1/16W

Ref. No.	Part No.	Description			Remarks
R501	1-216-809-11	METAL CHIP	100	5%	1/16W
R519	1-216-809-11	METAL CHIP	100	5%	1/16W
R520	1-216-833-91	RES,CHIP	10K	5%	1/16W
R521	1-216-833-91	RES,CHIP	10K	5%	1/16W
R522	1-216-833-91	RES,CHIP	10K	5%	1/16W
R527	1-216-833-91	RES,CHIP	10K	5%	1/16W
R528	1-216-833-91	RES,CHIP	10K	5%	1/16W
R530	1-216-864-11	METAL CHIP	0	5%	1/16W
R537	1-216-806-11	RES,CHIP	56	5%	1/16W
R539	1-216-864-11	METAL CHIP	0	5%	1/16W
R540	1-216-864-11	METAL CHIP	0	5%	1/16W
R541	1-216-864-11	METAL CHIP	0	5%	1/16W
R543	1-216-864-11	METAL CHIP	0	5%	1/16W
R544	1-216-864-11	METAL CHIP	0	5%	1/16W
R604	1-216-833-91	RES,CHIP	10K	5%	1/16W
R605	1-216-833-91	RES,CHIP	10K	5%	1/16W
R606	1-216-833-91	RES,CHIP	10K	5%	1/16W
R630	1-216-833-91	RES,CHIP	10K	5%	1/16W
R631	1-216-833-91	RES,CHIP	10K	5%	1/16W
R632	1-216-833-91	RES,CHIP	10K	5%	1/16W
R633	1-216-833-91	RES,CHIP	10K	5%	1/16W
R634	1-216-833-91	RES,CHIP	10K	5%	1/16W
R635	1-216-833-91	RES,CHIP	10K	5%	1/16W
R636	1-216-815-11	METAL CHIP	330	5%	1/16W
R637	1-216-809-11	METAL CHIP	100	5%	1/16W
R638	1-216-809-11	METAL CHIP	100	5%	1/16W
R639	1-216-809-11	METAL CHIP	100	5%	1/16W
R640	1-216-809-11	METAL CHIP	100	5%	1/16W
R641	1-216-809-11	METAL CHIP	100	5%	1/16W
R642	1-216-809-11	METAL CHIP	100	5%	1/16W
R643	1-216-815-11	METAL CHIP	330	5%	1/16W
R647	1-216-833-91	RES,CHIP	10K	5%	1/16W
R701	1-216-805-11	METAL CHIP	47	5%	1/16W
R702	1-216-817-11	METAL CHIP	470	5%	1/16W
R703	1-216-817-11	METAL CHIP	470	5%	1/16W
R704	1-216-817-11	METAL CHIP	470	5%	1/16W
R705	1-216-817-11	METAL CHIP	470	5%	1/16W
R706	1-216-821-11	METAL CHIP	1K	5%	1/16W
R707	1-216-844-11	METAL CHIP	82K	5%	1/16W
R708	1-216-844-11	METAL CHIP	82K	5%	1/16W
R709	1-216-844-11	METAL CHIP	82K	5%	1/16W
R710	1-216-844-11	METAL CHIP	82K	5%	1/16W
R711	1-216-833-91	RES,CHIP	10K	5%	1/16W
R712	1-216-839-11	METAL CHIP	33K	5%	1/16W
R720	1-216-821-11	METAL CHIP	1K	5%	1/16W
R721	1-216-821-11	METAL CHIP	1K	5%	1/16W
R722	1-216-801-11	METAL CHIP	22	5%	1/16W
R748	1-216-833-91	RES,CHIP	10K	5%	1/16W
R751	1-216-821-11	METAL CHIP	1K	5%	1/16W
R752	1-216-821-11	METAL CHIP	1K	5%	1/16W
R755	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R757	1-216-864-11	METAL CHIP	0	5%	1/16W
R758	1-216-864-11	METAL CHIP	0	5%	1/16W
R801	1-216-841-11	METAL CHIP	47K	5%	1/16W
R802	1-216-841-11	METAL CHIP	47K	5%	1/16W

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Ref. No.	Part No.	Description			Remarks
R803	1-216-841-11	METAL CHIP	47K	5%	1/16W
R804	1-216-841-11	METAL CHIP	47K	5%	1/16W
R805	1-216-840-11	METAL CHIP	39K	5%	1/16W
R806	1-216-840-11	METAL CHIP	39K	5%	1/16W
R807	1-216-835-11	METAL CHIP	15K	5%	1/16W
R808	1-216-835-11	METAL CHIP	15K	5%	1/16W
R809	1-216-844-11	METAL CHIP	82K	5%	1/16W
R810	1-216-844-11	METAL CHIP	82K	5%	1/16W
R812	1-216-845-11	METAL CHIP	100K	5%	1/16W
R813	1-216-845-11	METAL CHIP	100K	5%	1/16W
R815	1-216-836-11	METAL CHIP	18K	5%	1/16W
R816	1-216-845-11	METAL CHIP	100K	5%	1/16W
R817	1-216-852-11	METAL CHIP	390K	5%	1/16W
R818	1-216-852-11	METAL CHIP	390K	5%	1/16W
R819	1-216-849-11	METAL CHIP	220K	5%	1/16W
R820	1-216-851-11	METAL CHIP	330K	5%	1/16W
R821	1-216-840-11	METAL CHIP	39K	5%	1/16W
R822	1-216-845-11	METAL CHIP	100K	5%	1/16W
R823	1-216-833-91	RES,CHIP	10K	5%	1/16W
R824	1-216-833-91	RES,CHIP	10K	5%	1/16W
R825	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R826	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R827	1-216-851-11	METAL CHIP	330K	5%	1/16W
R828	1-216-837-11	METAL CHIP	22K	5%	1/16W
R829	1-216-837-11	METAL CHIP	22K	5%	1/16W
R831	1-216-833-91	RES,CHIP	10K	5%	1/16W
R832	1-216-833-91	RES,CHIP	10K	5%	1/16W
R834	1-216-847-11	METAL CHIP	150K	5%	1/16W
R835	1-216-847-11	METAL CHIP	150K	5%	1/16W
R836	1-216-847-11	METAL CHIP	150K	5%	1/16W
R837	1-216-844-11	METAL CHIP	82K	5%	1/16W
R838	1-216-848-11	METAL CHIP	180K	5%	1/16W
R839	1-216-848-11	METAL CHIP	180K	5%	1/16W
R840	1-216-848-11	METAL CHIP	180K	5%	1/16W
R841	1-216-843-11	METAL CHIP	68K	5%	1/16W
R842	1-216-844-11	METAL CHIP	82K	5%	1/16W
R843	1-216-844-11	METAL CHIP	82K	5%	1/16W
R844	1-216-843-11	METAL CHIP	68K	5%	1/16W
R845	1-216-843-11	METAL CHIP	68K	5%	1/16W
R846	1-216-841-11	METAL CHIP	47K	5%	1/16W
R847	1-216-296-91	SHORT	0		
R851	1-216-833-91	RES,CHIP	10K	5%	1/16W
R852	1-216-833-91	RES,CHIP	10K	5%	1/16W
R853	1-216-833-91	RES,CHIP	10K	5%	1/16W
R854	1-216-833-91	RES,CHIP	10K	5%	1/16W
R855	1-216-834-11	METAL CHIP	12K	5%	1/16W
R856	1-216-836-11	METAL CHIP	18K	5%	1/16W
R857	1-218-899-11	METAL CHIP	150K	0.50%	1/16W
R858	1-218-899-11	METAL CHIP	150K	0.50%	1/16W
R859	1-218-889-11	METAL CHIP	56K	0.50%	1/16W
R860	1-218-889-11	METAL CHIP	56K	0.50%	1/16W
R861	1-216-296-91	SHORT	0		
R864	1-216-138-00	METAL CHIP	3.3	5%	1/8W
R867	1-216-833-91	RES,CHIP	10K	5%	1/16W
R868	1-216-833-91	RES,CHIP	10K	5%	1/16W
R869	1-216-833-91	RES,CHIP	10K	5%	1/16W
R870	1-216-815-11	METAL CHIP	330	5%	1/16W
R871	1-216-817-11	METAL CHIP	470	5%	1/16W
R872	1-216-815-11	METAL CHIP	330	5%	1/16W
R873	1-216-821-11	METAL CHIP	1K	5%	1/16W
R909	1-216-809-11	METAL CHIP	100	5%	1/16W
R912	1-216-809-11	METAL CHIP	100	5%	1/16W
R915	1-216-809-11	METAL CHIP	100	5%	1/16W
R918	1-216-809-11	METAL CHIP	100	5%	1/16W

< COMPOSITION CIRCUIT BLOCK >

Ref. No.	Part No.	Description
* RB201	1-233-270-11	NETWORK, RES (8 GANG) 10K
* RB202	1-233-270-11	NETWORK, RES (8 GANG) 10K
* RB203	1-233-270-11	NETWORK, RES (8 GANG) 10K
* RB204	1-233-270-11	NETWORK, RES (8 GANG) 10K
* RB601	1-233-270-11	NETWORK, RES (8 GANG) 10K

< VARIABLE RESISTOR >

Ref. No.	Part No.	Description
RV401	1-223-583-11	RES, ADJ, CARBON 1K

< VIBRATOR >

Ref. No.	Part No.	Description
X001	1-781-308-21	OSCILLATOR, CRYSTAL(27MHz)
X201	1-781-185-21	VIBRATOR, CERAMIC(12.5MHz)

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* 1-468-359-32 POWER BLOCK (HS-030SU)

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(Ref.No. 7,000 Series)

< CAPACITOR >

Ref. No.	Part No.	Description		Remarks
C110	9-884-096-01	ELECT	220uF	200V
C131	1-126-964-11	ELECT	10uF	50V
C132	1-126-960-11	ELECT	1uF	50V
C186	1-107-967-11	ELECT	1uF	400V
C211	1-111-087-11	ELECT	330uF	35V
C213	1-126-947-11	ELECT	47uF	35V
C301	1-126-960-11	ELECT	1uF	50V
C311	1-111-087-11	ELECT	330uF	35V
C313	1-126-947-11	ELECT	47uF	35V
C401	1-126-948-11	ELECT	100uF	35V
C402	1-126-960-11	ELECT	1uF	50V
C511	1-126-942-11	ELECT	1000uF	25V
C512	1-126-947-11	ELECT	47uF	35V
C611	1-111-090-11	ELECT	560uF	35V

< DIODE >

Ref. No.	Part No.	Description
D101	9-884-089-01	DIODE S1WBA60
D104	8-719-109-63	DIODE RD3.0ESB2
D105	9-980-073-01	DIODE 1SS270A
D131	9-980-073-01	DIODE 1SS270A
D132	9-980-073-01	DIODE 1SS270A
D133	8-719-109-60	DIODE RD2.7ESB2
D135	9-980-073-01	DIODE 1SS270A
D182	8-719-109-60	DIODE RD2.7ESB2
D183	9-980-073-01	DIODE 1SS270A
D184	9-880-435-01	DIODE D1N60

Ref. No.	Part No.	Description	Remarks
D211	8-719-027-43	DIODE S2L20U	
D212	8-719-160-78	DIODE RD24FB2	
D311	8-719-200-59	DIODE 21DQ04	
D401	8-719-210-21	DIODE 11EQS04	
D402	8-719-110-02	DIODE RD7.5ESB1	
D511	8-719-027-43	DIODE S2L20U	
D611	8-719-500-50	DIODE D3S4M	
		< FUSE >	
⚠F101	1-532-503-31	FUSE (1.6A/250V)	
		< IC >	
IC301	8-759-420-19	IC AN1431T	
IC401	8-759-420-19	IC AN1431T	
		< IC LINK >	
⚠P211	1-533-588-11	IC LINK 500mA 60V	
⚠P311	1-533-593-11	IC LINK 2A 60V	
⚠P511	1-533-589-11	IC LINK 750mA 60V	
⚠P611	9-884-090-01	IC LINK 1.5A 60V	
		< PHOTO COUPLER >	
⚠PC101	8-749-010-59	PHOTO COUPLER TLP721F	
⚠PC102	8-749-010-59	PHOTO COUPLER TLP721F	
⚠PC103	8-749-010-59	PHOTO COUPLER TLP721F	
		< TRANSISTOR >	
Q101	9-880-437-01	TRANSISTOR 2SK2798	
Q102	8-729-023-98	TRANSISTOR 2SC3377	
Q103	9-880-437-01	TRANSISTOR 2SK2798	
Q131	8-729-023-98	TRANSISTOR 2SC3377	
Q181	9-884-097-01	TRANSISTOR 2SK2178	
Q182	8-729-023-98	TRANSISTOR 2SC3377	
Q183	9-884-097-01	TRANSISTOR 2SK2178	
		< RESISTOR >	
⚠R152	1-219-121-21	FUSIBLE 0.22	1/4W F
		< TRANSFORMER >	
⚠T101	9-884-094-01	TRANSFORMER OM-98023	
⚠T102	9-884-095-01	TRANSFORMER OM-98059	

Ref. No.	Part No.	Description	Remarks
*	A-6065-370-A	SI-24 BOARD, COMPLETE *********************	
			(Ref.No.: 1,000Series)
*	4-985-300-01	HOLDER (P-T)	
		< TRANSISTOR >	
Q821	8-729-926-31	PHOTO TRANSISTOR PT483F1	

Ref. No.	Part No.	Description	Remarks
*	A-6065-371-A	SO-11 BOARD, COMPLETE *********************	
			(Ref.No.: 1,000Series)
*	4-976-473-01	HOLDER (LED-S)	
		< DIODE >	
D851	8-719-055-84	DIODE GL528VS1	

Ref. No.	Part No.	Description	Remarks
*	A-6065-365-A	SW-322 BOARD, COMPLETE **********************	
			(Ref.No.: 1,000Series)
		< CONNECTOR >	
CN101	1-566-512-11	CONNECTOR, FPC (ZIF) 12P	
CN102	1-573-835-11	CONNECTOR, BOARD TO BOARD 3P	
		< DIODE >	
D101	8-719-056-06	DIODE SLR-342DCT32(JOG)	
		< JUMPER RESISTOR >	
JR100	1-216-295-91	SHORT 0	
JR101	1-216-295-91	SHORT 0	
JR102	1-216-295-91	SHORT 0	
JR103	1-216-295-91	SHORT 0	
JR104	1-216-295-91	SHORT 0	
JR105	1-216-295-91	SHORT 0	
JR106	1-216-295-91	SHORT 0	
JR107	1-216-295-91	SHORT 0	
JR108	1-216-295-91	SHORT 0	
JR109	1-216-295-91	SHORT 0	
JR111	1-216-296-91	SHORT 0	
JR112	1-216-296-91	SHORT 0	
JR113	1-216-296-91	SHORT 0	
JR114	1-216-295-91	SHORT 0	
JR115	1-216-295-91	SHORT 0	
JR116	1-216-295-91	SHORT 0	
JR117	1-216-296-91	SHORT 0	
JR118	1-216-296-91	SHORT 0	
JR119	1-216-295-91	SHORT 0	
		< RESISTOR >	
R101	1-216-043-91	RES,CHIP 560 5% 1/10W	
R104	1-216-059-00	METAL CHIP 2.7K 5% 1/10W	
R105	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R106	1-216-065-91	RES,CHIP 4.7K 5% 1/10W	
R107	1-216-071-00	METAL CHIP 8.2K 5% 1/10W	
R108	1-216-077-91	RES,CHIP 15K 5% 1/10W	
R111	1-216-055-00	METAL CHIP 1.8K 5% 1/10W	
R122	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R123	1-216-055-00	METAL CHIP 1.8K 5% 1/10W	
R124	1-216-059-00	METAL CHIP 2.7K 5% 1/10W	
R125	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R126	1-216-065-91	RES,CHIP 4.7K 5% 1/10W	
R127	1-216-071-00	METAL CHIP 8.2K 5% 1/10W	
R128	1-216-077-91	RES,CHIP 15K 5% 1/10W	
R132	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	

Note :	Note :
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description			Remarks
R134	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R135	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R136	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R142	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R143	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R144	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R145	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R146	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R147	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
		< SWITCH >			
S103	1-418-585-11	ENCODER, ROTARY(ENTER)			
S108	1-771-349-21	SWITCH, KEYBOARD(JOG)			
S121	1-771-349-21	SWITCH, KEYBOARD(TITLE)			
S122	1-771-349-21	SWITCH, KEYBOARD(DVD MENU)			
S123	1-771-349-21	SWITCH, KEYBOARD(RETURN)			
S124	1-771-349-21	SWITCH, KEYBOARD(DISPLAY)			
S125	1-771-349-21	SWITCH, KEYBOARD(CLEAR)			
S126	1-771-349-21	SWITCH, KEYBOARD(1/ALL DISCS)			
S127	1-771-349-21	SWITCH, KEYBOARD(TIME/TEXT)			
S128	1-771-349-21	SWITCH, KEYBOARD(LOAD)			
S131	1-771-349-21	SWITCH, KEYBOARD(REPEAT)			
S132	1-771-349-21	SWITCH, KEYBOARD(PROGRAM)			
S133	1-771-349-21	SWITCH, KEYBOARD(SHUFFLE)			
S134	1-771-349-21	SWITCH, KEYBOARD(SORT)			
S135	1-771-349-21	SWITCH, KEYBOARD(FILE D)			
S136	1-771-349-21	SWITCH, KEYBOARD(EDIT CD)			
S141	1-771-349-21	SWITCH, KEYBOARD(FOLDER A)			
S142	1-771-349-21	SWITCH, KEYBOARD(FOLDER B)			
S143	1-771-349-21	SWITCH, KEYBOARD(FOLDER C)			
S144	1-771-349-21	SWITCH, KEYBOARD(FOLDER D)			
S145	1-771-349-21	SWITCH, KEYBOARD(FOLDER ALL)			
S146	1-771-349-21	SWITCH, KEYBOARD(FOLDER DVD)			
S147	1-771-349-21	SWITCH, KEYBOARD(FOLDER CD)			

Ref. No.	Part No.	Description			Remarks
*	A-6065-275-A	TK-51 BOARD, COMPLETE			
		**********************			
					(Ref.No.: 5,000Series)
		< CAPACITOR >			
C004	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C005	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C006	1-124-779-00	ELECT CHIP	10uF	20%	16V
C007	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C008	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C009	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C010	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C011	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C012	1-124-779-00	ELECT CHIP	10uF	20%	16V
C013	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C014	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C015	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C016	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C017	1-164-172-11	CERAMIC CHIP	0.0056uF	10%	25V
C018	1-164-739-11	CERAMIC CHIP	560PF	5%	50V
C019	1-164-172-11	CERAMIC CHIP	0.0056uF	10%	25V
C020	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C021	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C022	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C023	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C024	1-164-730-11	CERAMIC CHIP	0.0012uF	10%	50V
C025	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C026	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C027	1-164-217-11	CERAMIC CHIP	150PF	5%	50V
C028	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C029	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C030	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C031	1-124-779-00	ELECT CHIP	10uF	20%	16V
C032	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C033	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C034	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C035	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C036	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C037	1-164-739-11	CERAMIC CHIP	560PF	5%	50V
C038	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C039	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C040	1-162-969-11	CERAMIC CHIP	0.0068uF	10%	25V
C041	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
		< CONNECTOR >			
CN001	1-785-700-21	CONNECTOR, FPC (ZIF) 23P			
CN002	1-566-529-11	CONNECTOR, FPC (ZIF) 13P			
CN003	1-785-699-21	CONNECTOR, FFC/FPC 18P			
CN004	1-785-699-21	CONNECTOR, FFC/FPC 18P			
		< DIODE >			
D003	8-719-988-61	DIODE 1SS355TE-17			
		< IC >			
IC001	8-759-567-24	IC SSI33P3722			
		< COIL >			
L001	1-412-031-11	INDUCTOR CHIP	47uH		
		< TRANSISTOR >			
Q001	8-729-903-46	TRANSISTOR	2SB1132-T100-QR		
Q002	8-729-015-76	TRANSISTOR	UN5211		
		< RESISTOR >			
R001	1-216-815-11	METAL CHIP	330	5%	1/16W
R002	1-216-809-11	METAL CHIP	100	5%	1/16W
R003	1-216-809-11	METAL CHIP	100	5%	1/16W
R004	1-216-837-11	METAL CHIP	22K	5%	1/16W
R005	1-216-013-00	METAL CHIP	33	5%	1/10W
R006	1-216-013-00	METAL CHIP	33	5%	1/10W
R007	1-216-841-11	METAL CHIP	47K	5%	1/16W
R008	1-216-797-11	METAL CHIP	10	5%	1/16W
R009	1-216-834-11	METAL CHIP	12K	5%	1/16W
R010	1-216-833-91	RES,CHIP	10K	5%	1/16W
R012	1-216-864-11	METAL CHIP	0	5%	1/16W
R014	1-216-864-11	METAL CHIP	0	5%	1/16W
R015	1-216-833-91	RES,CHIP	10K	5%	1/16W
R016	1-216-833-91	RES,CHIP	10K	5%	1/16W
R017	1-216-829-11	METAL CHIP	4.7K	5%	1/16W

Ref. No.	Part No.	Description			Remarks
R018	1-216-833-91	RES,CHIP	10K	5%	1/16W
R022	1-216-811-11	METAL CHIP	150	5%	1/16W
R023	1-216-820-11	METAL CHIP	820	5%	1/16W
R025	1-216-813-11	METAL CHIP	220	5%	1/16W
R026	1-216-864-11	METAL CHIP	0	5%	1/16W
R029	1-216-861-11	METAL CHIP	2.2M	5%	1/16W
*	A-6065-372-A	TM-126 BOARD, COMPLETE **********************			
					(Ref.No.: 1,000Series)
		< CONNECTOR >			
* CN881	1-568-951-41	PIN, CONNECTOR 2P			
		< MOTOR >			
M881	A-6062-234-A	TABLE(MOTOR ASSY)			
*	A-6065-369-A	TS-150 BOARD, COMPLETE **********************			
					(Ref.No.: 6,000Series)
		< CAPACITOR >			
C701	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
		< CONNECTOR >			
* CN701	1-568-944-11	PIN, CONNECTOR 6P			
CN702	1-506-481-11	PIN, CONNECTOR 2P			
CN703	1-506-481-11	PIN, CONNECTOR 2P			
* CN704	1-568-954-11	PIN, CONNECTOR 5P			
		< JUMPER RESISTOR >			
JR701	1-216-295-91	SHORT	0		
JR702	1-216-295-91	SHORT	0		
JR703	1-216-295-91	SHORT	0		
JR704	1-216-295-91	SHORT	0		
JR705	1-216-296-91	SHORT	0		
JR706	1-216-295-91	SHORT	0		
JR707	1-216-296-91	SHORT	0		
JR708	1-216-296-91	SHORT	0		
JR709	1-216-296-91	SHORT	0		
		< PHOTO INTERRUPTER >			
PH701	8-749-924-18	PHOTO INTERRUPTER RPI-1391			
PH702	8-749-924-18	PHOTO INTERRUPTER RPI-1391			
PH703	8-749-924-18	PHOTO INTERRUPTER RPI-1391			
		< RESISTOR >			
R701	1-216-047-91	RES,CHIP	820	5%	1/10W
R702	1-216-047-91	RES,CHIP	820	5%	1/10W
R703	1-216-047-91	RES,CHIP	820	5%	1/10W
R704	1-216-033-00	METAL CHIP	220	5%	1/10W
R705	1-216-045-00	METAL CHIP	680	5%	1/10W
R706	1-216-049-91	RES,CHIP	1K	5%	1/10W
R707	1-216-049-91	RES,CHIP	1K	5%	1/10W

Ref. No.	Part No.	Description	Remarks
		< VARIABLE RESISTOR >	
RV701	1-241-787-11	RES, ADJ, CARBON 47K	
		MISCELLANEOUS **************	
⚠5	1-468-359-32	POWER BLOCK	
6	1-791-203-11	CABLE, FLEXIBLE FLAT (FTM-7)	
8	1-500-386-11	FILTER, CLAMP (FERRITE CORE)	
15	1-791-205-11	CABLE, FLEXIBLE FLAT (FMA-13)	
16	1-791-206-11	CABLE, FLEXIBLE FLAT (FAC-9)	
17	1-791-204-11	CABLE, FLEXIBLE FLAT (FMA-12)	
18	1-790-165-11	CABLE, FLEXIBLE FLAT (FMA-9)	
⚠19	1-783-531-31	CORD, POWER	
20	1-418-321-51	COMMANDER, STANDARD(RMT-D113A)	
21	1-791-207-11	CABLE, FLEXIBLE FLAT (FMC-12)	
22	1-791-208-11	CABLE, FLEXIBLE FLAT (FFM-30)	
24	1-793-444-11	HOUSING, PLUG (TRANSLATION)15P	
158	1-791-209-11	CABLE, FLEXIBLE FLAT (FFS-8)	
⚠308	8-820-081-03	OPTICAL PICK-UP (KHM-220AAA/J1RP)	
M802	A-6062-239-A	MOTOR ASSY, LOADING	
M881	A-6062-234-A	TABLE (MOTOR ASSY)	
		ACCESSORIES & PACKING MATERIALS ********************************	
	1-575-335-21	CORD, CONNECTION(S-VIDEO CABLE 1.5m)	
	1-776-258-11	CORD, AVC CONNECTION(1.5m)	
	1-777-360-21	CORD, CONNECTION(COAXIAL 1.5m)	
	1-790-938-11	CORD, CONNECTION(1.5m)	
	3-867-529-11	MANUAL, INSTRUCTION(ENGLISH)	
	3-867-529-21	MANUAL, INSTRUCTION(ENGLISH/FRENCH)	
	3-970-608-01	SUMITITE (B3), +BV	
	3-970-608-51	SUMITITE (B3), +BV	
		************** HARDWARE LIST **************	
#1	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
#2	7-685-871-01	SCREW +BVTT 3X6 (S)	
#3	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S	
#4	7-685-534-19	SCREW +BTP 2.6X8 TYPE2 N-S	
#5	7-682-547-04	SCREW +BV 3X6, S TIGHT	
#6	7-682-947-01	SCREW +PSW 3X6	
#7	7-621-772-10	SCREW +B 2X4	
#8	7-624-111-04	STOP RING 7.0, TYPE -E	
#9	7-624-106-04	STOP RING 3.0, TYPE -E	
#10	7-621-772-20	SCREW +B 2X5	
#11	7-682-552-09	SCREW +B 3X16	
#12	7-621-775-00	SCREW +B 2.6X3	
#13	7-682-545-09	SCREW +B 3X4	
#14	7-685-872-09	SCREW +BVTT 3X8 (S)	
#15	7-624-109-04	STOP RING 5.0, TYPE -E	
#16	7-621-775-20	SCREW +B 2.6X5	

Note :	Note :
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

9-921-734-11

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Home Video Company

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